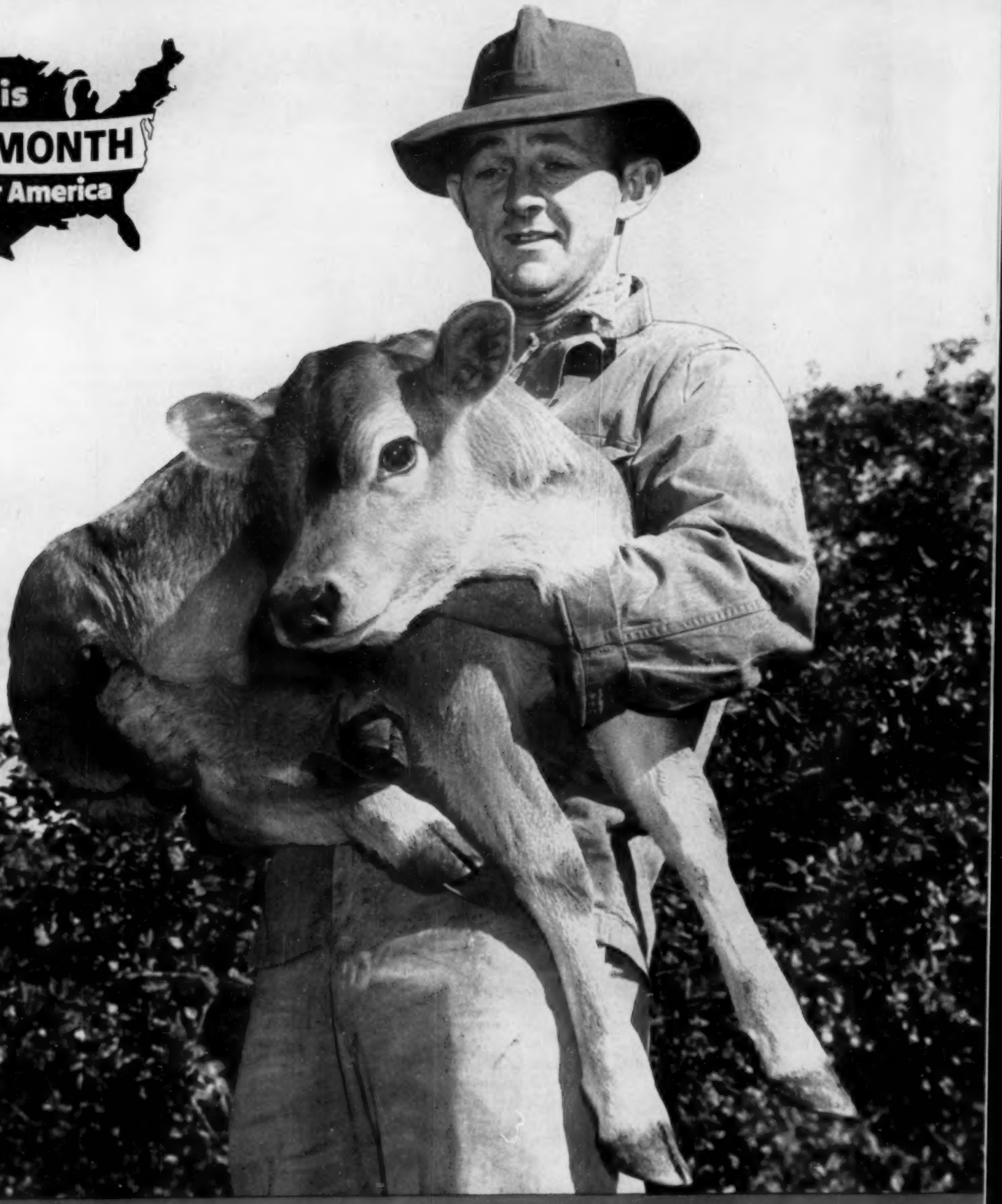
HOARD'S DAIRYMAN

JUNE 10, 1958



THE NATIONAL DAIRY FARM MAGAZINE

The Bel Air Sport Coupe with Body by Fisher. Every window of every Chevrolet is Safety Plate Glass.

YOUR PRIDE WILL PERK UP *whenever you're seen in your* **'58 CHEVROLET.** *One look at those low, wind-whisked lines and you know you're bound to be noticed. And you'll find still more to be proud of in the quick, sure way Chevy responds to your touch.*

Sure as it's a Chevy, you're going to be looked at when you drive this good-looker. Don't be surprised if you even hear a soft whistle of approval now and then. There's just something about Chevy's low, straining-at-the-bit beauty that makes people sit up and take notice.

The way this Chevrolet *moves* is something to be admired, too. Its quick-sprinting power, for example, and the reassuring way it keeps its poise, even on sudden dips and curves.

Another big reason you'll be prouder of a Chevy is that it's the only honest-to-goodness *new* car in the low-price field. There's a new X-built Safety-Girder frame . . . new Turbo-Thrust V8* . . . new longer, lower Body by Fisher . . . a choice of new standard Full Coil suspension or a real air ride.* Cars just don't come any newer—or nicer—than this one.

Make it a point to stop by your Chevrolet dealer's real soon. What he's selling is high on pride but low on price. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**Optional at extra cost.*

CHEVROLET

These popular pull-type combines get bonus bushels

with CASE® Balanced Threshing

Here's why. You get a **full-width cut** that matches the threshing capacity of the combine . . . **controlled even feeding** to the cylinder . . . **large-diameter, heavy-duty cylinder**—spike-tooth or rub-bar . . . for handling a large, steady volume of crop . . . **straight-through design** to prevent clogging or bunching . . . **"stretch-out" straw rack** for additional separating capacity . . . and **sieves** the same width as cylinder and straw rack for even distribution and cleaning.

Six-foot Case 65 combine has new 4-speed reel that adjusts up and down from tractor seat. Choice of spike-tooth or rub-bar cylinder. Variable-speed belt drive gives instant control of cylinder speed with just a few quick turns of a handy crank. Extra-large cleaning capacity with variable-speed fan and fully adjustable sieves. Choice of PTO or air-cooled engine.

New 7-foot CASE 77

This popular new combine . . . like all other Case combines . . . is designed to give you "balanced threshing." The new Case 77 has a smooth-running sickle that cuts cleanly through rank, tangled growth without clogging. Spike-tooth or rub-bar cylinder gives gentle, thorough threshing. Variable-speed cylinder drive is easily adjusted with handy crank. Straw rack is extra long for efficient separating action. Case "Air-Lift" cleaning with variable-speed fan adjusts to balance air pressure for a variety of crops. Choice of PTO or engine drive.

Case 150 self-propelled combine with choice of 10, 13 or 15-foot header gives you acre-eating capacity. Header lifts hydraulically from 2 to 32 inches. Has hydraulic variable-speed control to make full use of threshing capacity in thin, heavy, rank or tangled crop. Hydraulic power steering optional.

New F-34 corn head for the Case 150 self-propelled combine mounts or dismounts in an hour or less, lets you combine corn in the morning, beans in the afternoon. Low gathering chains get down stalks. Hydraulic lift control.

Don't put it off. See your Case dealer today about one of these profit-making Case combines.

New Case Crop-Way Purchase Plan puts a new bushel-saving Case combine to work on your farm now. Make later payments as you have money coming in from crops and livestock.

J. I. CASE

J. I. CASE CO. • RACINE, WIS.

1st in Quality for Over 100 Years

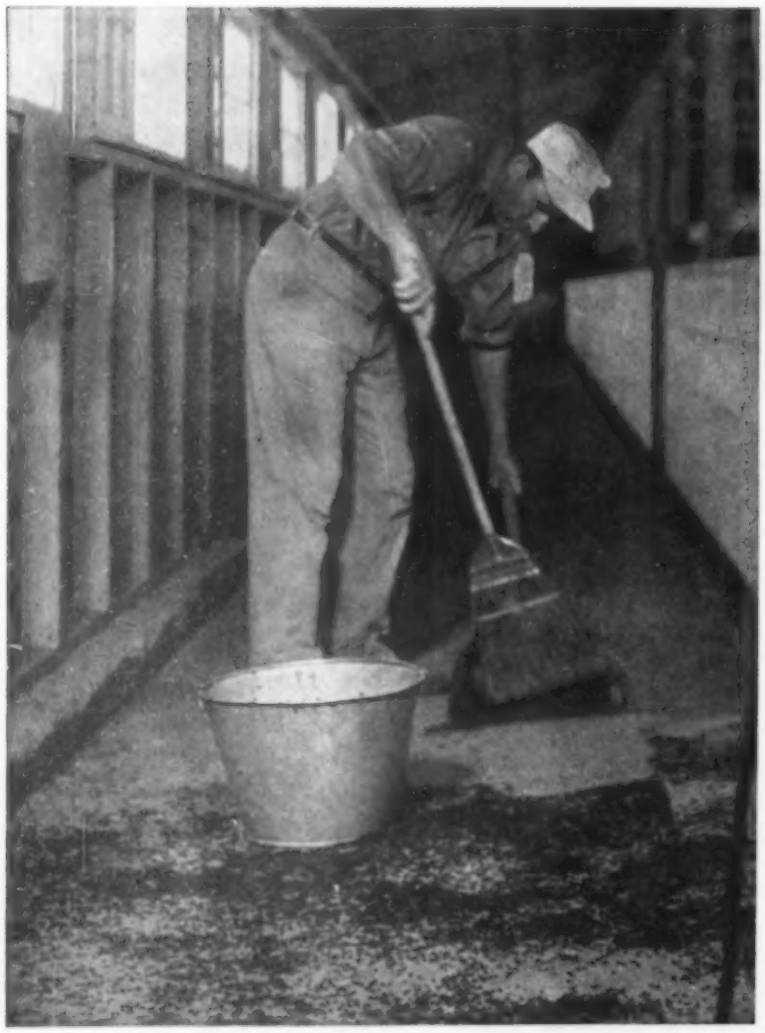
Get the Grain-Saving Facts

Send for Case "balanced threshing" story in the combine size that interests you. Mail to J. I. Case Co., Dept. F-398, Racine, Wis.

- ☐ 6-foot Case 65 combine
- ☐ 7-foot Case 77 combine
- ☐ 9 or 12-foot Case 110
- ☐ Case 150 self-propelled combine with new corn head
- ☐ Case Crop-Way Purchase Plan

Name_____ Student ☐

Address_____



Keep a broom and shovel handy if you plan to use Purina Fly Bait this summer. You'll need 'em to sweep up dead flies.

how to kill flies... LEGALLY

New regulations will likely make your fly control program just a little more complicated this summer. Exactly what is approved and what is prohibited?

Our suggestion is that you leave this problem to Purina Research people who developed the following products and program for 1958.

Barns, loafing sheds, milking area: Spray walls and ceilings with Purina Malathion Spray two or three times this summer. Sprinkle Purina Fly Bait on floors, window sills, partitions.

Cows: Spray daily or as needed with Purina Dairy Spray, using electric or hand sprayer. Same spray is ok for use in the milk room.

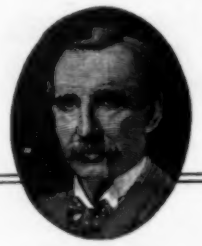
This simple plan works like a charm. And for extra convenience, your Purina Dealer will gladly deliver your fly season needs along with your next order of Purina Dairy Chows or Concentrates. Phone him now at the Store with the Checkerboard Sign.

FEED PURINA...
YOU CAN DEPEND ON THE CHECKERBOARD FOR QUALITY...SERVICE

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
W. D. Hoard & Sons Co.
Fort Atkinson, Wis.



W. D. Hoard

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W. D. Hoard, 1885
Fort Atkinson, Wis.

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COVER PICTURE

Our June Dairy Month cover picture was taken on the Arrowhead Farm, Durham, Connecticut. Mr. Les Burlison, Jr., is holding Beacon Sybil Frosty, a registered Jersey that is a granddaughter of Mrs. Burlison's first 4-H calf.

The Arrowhead Farm herd average on H.I.R. was 7,319 pounds milk, 377 pounds butterfat with 31 cows in milk. Currently the herd consists of 85 registered Jerseys with 44 in milk.

This photograph is by Jerome Wexler.

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The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

Washington Dairygrams

DAIRY UNITY SHAKEN AS HOUSE SUBCOMMITTEE HEARS TESTIMONY ON SELF-HELP PROPOSAL. MILK PRODUCERS FEDERATION AND GRANGE SUPPORT WHILE FARM BUREAU AND NATIONAL CREAMERIES OPPOSE. HEARINGS CONTINUE.

PERSONALITY CLASH ON HOUSE DAIRY SUBCOMMITTEE THREATENS BIPARTISAN AGREEMENT ON ANY DAIRY PROGRAM. REPUBLICAN PROPONENT BELIEVES DEMOCRAT CHAIRMAN MANEUVERED HEARING SO THAT SECRETARY BENSON WOULD BE CHARGED WITH RESPONSIBILITY OF SELF-HELP DEFEAT. CHAIRMAN DENIES ALLEGATION. TEMPERS SHORT. DAIRY LEADERS DEEPLY CONCERNED OVER EFFECT ON FUTURE LEGISLATION INVOLVING DAIRYING.

MILK FLOW SLACKENS AS APRIL PRODUCTION ABOUT EQUAL TO LAST YEAR. DURING FIRST FOUR MONTHS OF 1958 MILK PRODUCTION UP LESS THAN 1 PER CENT COMPARED TO SAME PERIOD 1957.

SENATE SCHEDULES HEARINGS STARTING MAY 26 ON OMNIBUS FARM BILL. DAIRY PROPOSAL TO BE CONSIDERED JUNE 2 AND 3. DAIRY LEADERS BELIEVE PROSPECTS ARE GOOD FOR FAVORABLE CONSIDERATION OF SELF-HELP BILL.

MEAT PACKERS WILL COME UNDER CONCURRENT JURISDICTION OF U.S.D.A. AND FEDERAL TRADE COMMISSION FOR THREE YEARS UNDER SENATE PASSED BILL. MEANS MISLEADING ADVERTISING OF OLEO AND UNFAIR TRADE CONCESSIONS IN MERCHANDISING OF DAIRY PRODUCTS WILL BE MORE VIGOROUSLY PROSECUTED. HOUSE ACTION EXPECTED IN NEAR FUTURE.

WHEAT SUPPORT PRICE WILL BE $1.81 FOR 1959 CROP IF MARKETING QUOTAS ARE APPROVED AT JUNE 20 REFERENDUM. IF NOT APPROVED, SUPPORT PRICE WILL BE $1.20.

★ ☆ ☆

In YOUR next issue!

"I HAVE SOME ADVICE FOR YOU" . . . Here is the first-hand account of a young dairy farmer who is rebuilding a life shattered five years ago by polio. Don't miss this fascinating story and a "word to the wise."

OAT OR CORN SILAGE, WHICH ONE FOR YOU? . . . Both have their place, although corn outyields oats in the corn belt. If you don't need the straw, oats will make good silage. You'll need to be on your toes though.

HOW TO KEEP HYDRAULIC SYSTEM WORKING . . . Another in our popular series on machinery tells how to avoid troubles caused by dirt in the system, thus helping to insure trouble-free service for the life of your tractor.

WEEDS CAUSE FEEDING PROBLEMS . . . In Nat Allen's feeding column you will see how weeds not only cut down pasture yields, but they can cause off-flavored milk and the death of animals, as well.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____ Please send me Hoard's Dairyman for _____ years.

Name_____ R. F. D._____

P. O._____ State_____

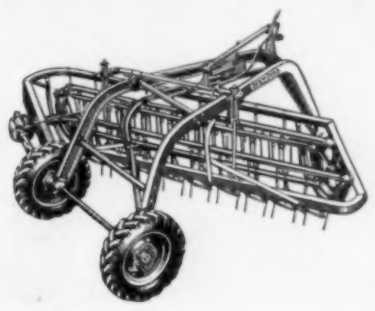
SPECIALS

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

...BY THE RUGGED RAKE*

WITH GENTLE ACTION



*NEW IDEA new pull-type parallel bar rake fits any tractor. Makes fluffiest hay you ever saw. See your NEW IDEA dealer, or write for free literature. NEW IDEA Farm Equipment Co., Dept. 587, Coldwater, Ohio

GOOD RESULTS

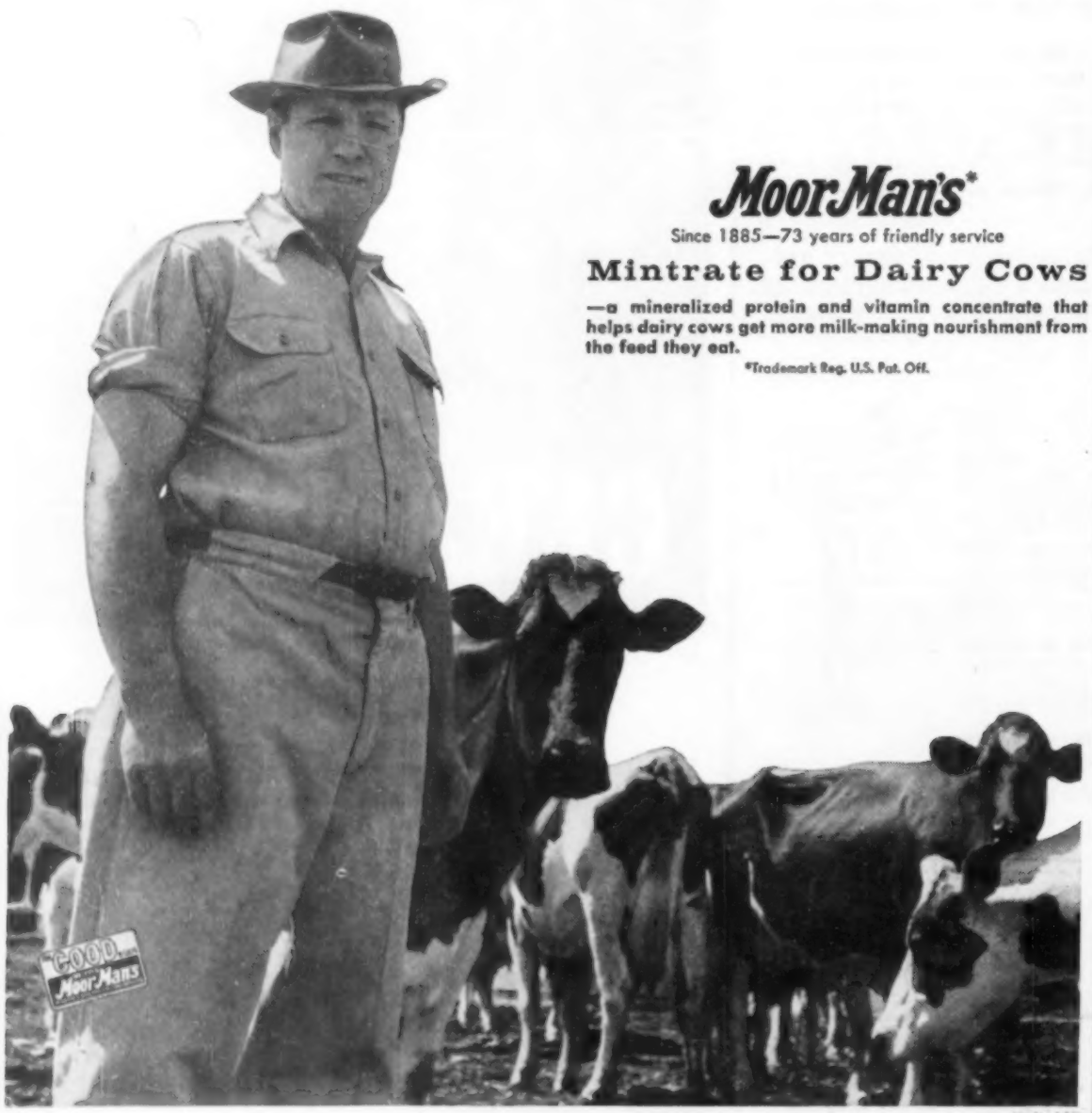
—as reported by Ronald M. Paddock, Lake County, Illinois

"My feed records prove that I make more money with MoorMan's Mintrate* for Dairy Cows."

"I belong to the Illinois Farm Bureau Farm Management Service. The books are audited through the University of Illinois. And the facts prove it makes sense to feed MoorMan's."

"Last year my return over feed cost was $356.00 per cow. That's what I call good results. My 44 cow herd produced an average of 13,385 pounds of milk and 491 pounds of butterfat. I fed only MoorMan's Mintrate, my own grain, roughage and pasture. Mintrates are so concentrated my total cash outlay to produce each 100 pounds of milk was only 18⅓c. That's why I *know* it pays me to feed MoorMan's Mintrates."

Like Ronald Paddock you, too, can cut your cash outlay for feed, stimulate annual milk flow and increase your profits, when you add Dairy Cow Mintrate to your grain and roughage ration. For Mintrate is a concentrated blend of rich proteins, necessary minerals and vital vitamins —ingredients that help cows turn a greater percentage of home grown feeds into milk and butterfat. Only a pound of Mintrate a day, fed the year 'round, means more milk at less cost. For greater net profit from *your* herd talk to your MoorMan Man. If he doesn't call soon, write Moorman Mfg. Co., Dept. P86, Quincy, Illinois.



*MoorMan's**
Since 1885—73 years of friendly service
Mintrate for Dairy Cows
—a mineralized protein and vitamin concentrate that helps dairy cows get more milk-making nourishment from the feed they eat.
*Trademark Reg. U.S. Pat. Off.

Mr. Paddock believes there are four factors that contribute to profitable dairying. (1) Keep good cows. (2) Practice good management. (3) Feed good roughage, grain and MoorMan's Mintrate. (4) Keep accurate farm records. He is President of the Wauconda Pure Milk Association; Director of the Wauconda National Bank; Past President of the Lake County Farm Bureau; President of the University of Illinois Extension Council for Lake County; 4-H Leader of the Volo Agricultural Club. He has been feeding MoorMan's for 12 years.

Opinions, Brickbats, Bouquets . . .

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Proud to help

In reply to Robert E. Arthur's letter, "Do ladies want medals?" (April 25), maybe there is a big hullabaloo about the gals milking cows, but I know my husband would rather have me than a 10-year-old milking his cows. He respects his herd.

And, you know, his socks get mended and occasionally he gets a new pair or two. The sewing machine, electric skillet, vacuum cleaner, and so forth he gave me help enough so that I feel free to help him when he needs me, either in the barn or field. I'm proud to help.

Virginia HARRIET WIGHT

Pat on the shoulder

Medals? Heck, no! But when my son and I do evening milking to extend my husband's working day that much longer, we work for a pat on the shoulder rather than a kick lower down.

Ohio MRS. WELDON M. APPLE

"Satisfied"

I've had one new hairdo in 12 years. I average two readymade dresses a year; I make the rest or wear hand-me-downs. I make as many of cur children's clothes as possible and get by as cheaply as I can. It's no disgrace to be poor as long as we aren't lazy.

I enjoy helping my husband and I'm sure he'd enjoy buying me fur coats, nylons, new hats, new rugs, lipstick, hairdos, and what-have-you — maybe even a medal — if we could afford it. Until we can afford them, I'll be satisfied to be loved and appreciated by him.

Mr. Arthur doesn't know how lucky he is if his wife does the milking alone. I like to help so I can be with my husband.

Missouri MRS. J. A. PORTER

"Summons to court"

. . . an arrogant, conceited, stubborn, dominating old donkey!

And capital punishment, indeed! I'd capital punish him, the brute, with a nice summons to appear in court with a fat appeasement for insulting my dignity. And if he didn't learn his lesson and continued to be brutal, I'd take the farm away from him, lock, stock, and barrel!

Iowa MRS. DUNCAN MCGREGOR

"Weary, fat, and bald"

I do think the wives deserve a medal. When a woman marries a farmer all she gets is a meal ticket. It is the farmer who gets a cook, cleaning woman, nursemaid for the children, a personal maid for himself, a painter, a carpenter, a companion, a secretary, and a sweetheart all in one.

With passing years, he can grow tired and weary, fat and bald, go for a week without shaving, and forget all the tender little things

that make her life worth-while but what about her? She must do all her work without help or praise, yet he expects her to remain as attractive and loving as a brand new bride.

Illinois "MICKEY"

Medal for wife

If, indeed, you are married, then I vote for a medal for your wife.

Illinois MRS. R. H. THIES

". . . to your cave"

Mr. Arthur, why don't you go back to your cave?

MRS. NED VOELKER
North Dakota

Sorry for Mrs. Arthur

. . . and when he said he cut his wife down to the same size, I surely feel sorry for her having to live with such a man!

DUDLEY S. GREGORY, SR.
New York

Better not venture out

If you value your life, you'd better not venture out from under your rock again because I and every self-respecting farm wife have our insect sprayers loaded with DDT and pointed in your direction.

Minnesota MRS. CARL LEHMAN

* * *

God didn't make woman to support man!

MRS. IVAN A. OKALEY
Pennsylvania

"Beast"

A beast like you belongs in a pen with a big ring in your nose. Take that ball and chain off your little wife and I'll bet she'd run for miles trying to get away from you. Slavery is a thing of the past and it's about time you knew it.

Minnesota J.D.S.

Ready for fox farm

If men ever tried to do the work their wives do, they would all have been ready for the fox farm a long time ago.

Minnesota MRS. HUGO SCHRAM

A partnership

Get yourself a hired man to help you with the milking. Then you can consider yourself "boss." I always thought marriage was considered a partnership and show me one partnership where just one partner is "boss."

Michigan MRS. CASIMER SIKOSKI

Before you leave the farm

I just read "Before you leave the farm" for young boys thinking about going to the city. Who do you think you are kidding?

Believe me, the young boys on farms know you don't push buttons to haul manure and clean out the barns, nor to feed silage. A good many backs still ache from carrying water pails.

Where in the world have you been when you think this is farming? Not on the average farm, that is for sure!

Farming may be all right, but face the facts. There is plenty of hard work yet and backaches to go with it. Never a day off and some penny-pinching, too.

If you are trying to talk the youngsters into staying on the farm, at least tell them the truth. They know anyway. Then point out the good points of farming.

You have a wonderful magazine and we do enjoy it, but you have pictured one farm in a hundred or more as modern farming. Someone has misled you on everyday farming and the boys will find that out the first day they hit the farm.

Iowa MRS. J. DUNCAN

Milk—not "mud"

After finishing Frank Neu's "They praise it, why don't they drink it?" I can't help but voice an opinion. I believe that milk and the use of milk products or dairy products in general is not emphasized enough to the young girls and ladies at an early age. So many magazines always feature those gooey, fattening desserts.

Ever look around and see what some gals do to the guys they love; namely, mistreat them via the dinner table? If they would see to it that they got a proper amount of those wonderful dairy foods every day, they wouldn't be so fat and be a risk for insurance as far as dying young from heart attacks.

Another thing I can't understand is when we go to a Holstein-Friesian banquet or picnic, where the county breeders get together to discuss how to get more milk and butterfat per cow, when it is time to eat what do they drink? Oh, yes, mud not milk. As a rule, you could count the adult milk drinkers on one hand.

Wisconsin MRS. PERMIN GRABER

"Old ladies" milking?

I see by Mrs. Stella Petkovsek's letter (April 10) that a Mr. Bush was considered the world's champion milker because he milked 11 pounds, 8 ounces in 2 minutes. Good grief! The other contestants must have been old ladies over 95 years old.

Just for the fun of it, I had my wife time me for two minutes, and I milked 16 pounds (not an easy milking cow, either). A few years ago we had a real easy milking cow that we milked by hand. A guy timed me on this one and I ran over a 12-quart pail in 2½ minutes; about 18 pounds in 2 minutes — 11 pounds, 8 ounces, indeed!

Minnesota ROLLIE BAUER

Likes patterns

May I take this opportunity to tell you how delighted I have been with your increase of pattern styles for half-sizes.

These three I have ordered from the March 10 issue of Hoard's Dairyman are all very different types, something hard to find.

I have ordered from you before, and at times included orders for a neighbor. You would perhaps like to know, I have several who always ask to see the new issues just for the pattern page.

My congratulations to your department, and gratitude because you have recognized the need of many women.

New York MRS. CHAS. C. BUCK

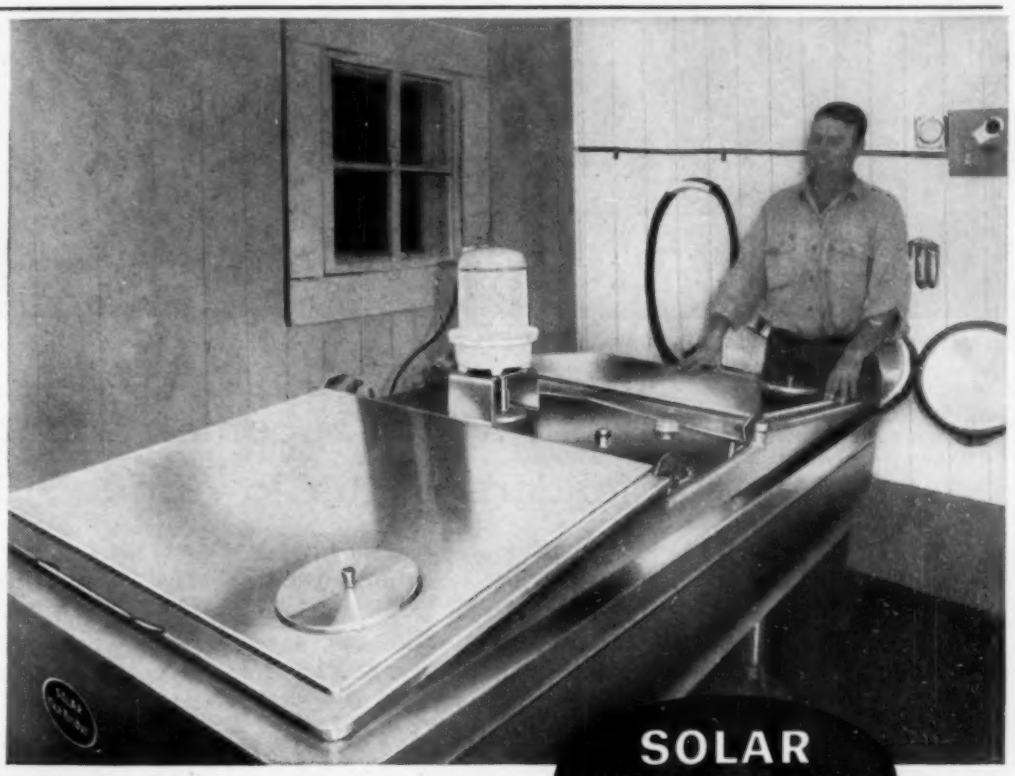
"The Solar Milk Minder has every feature it takes to make a quality bulk tank."

says Irvin McDaniel of Rt. 1, Calhoun, La.

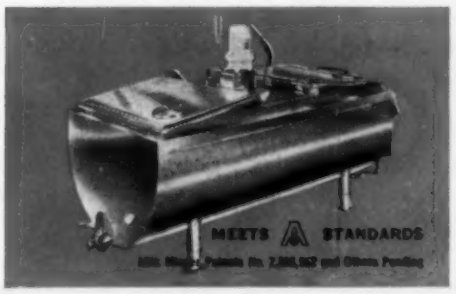
"When I decided to go bulk I shopped around and saw a lot of bulk tanks. I found every feature I wanted in a Solar Milk Minder. For example; it's constructed of heavy gauge stainless steel—inside and out. As a result, I don't have to worry about any rusting or chipping. The Milk Minder's low design enables me to pour without any strain, and every surface is within easy reach for rapid cleaning, too. Cooling with Solar's "Controlled Flow" expansion system is fast and economical. When I see all the time and money I have saved since owning a Milk Minder, I only wish I had bought one sooner."

If you're planning to go bulk, make sure your plans include a Solar Milk Minder. It's the finest in every way.

Dealer Franchises Available



SOLAR Milk Minder®



- Solar Milk Minders are available in 100 to 1,000 gallon capacities with remote or self-contained condensing units.
- Solar Permanent Company also makes the Milk Minder Series "365"—the only bulk tanks powered by liquid or gas fuels.

SOLAR FINANCING AVAILABLE

Please send me a copy of the Solar Catalog

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Address_____

City_____ State_____

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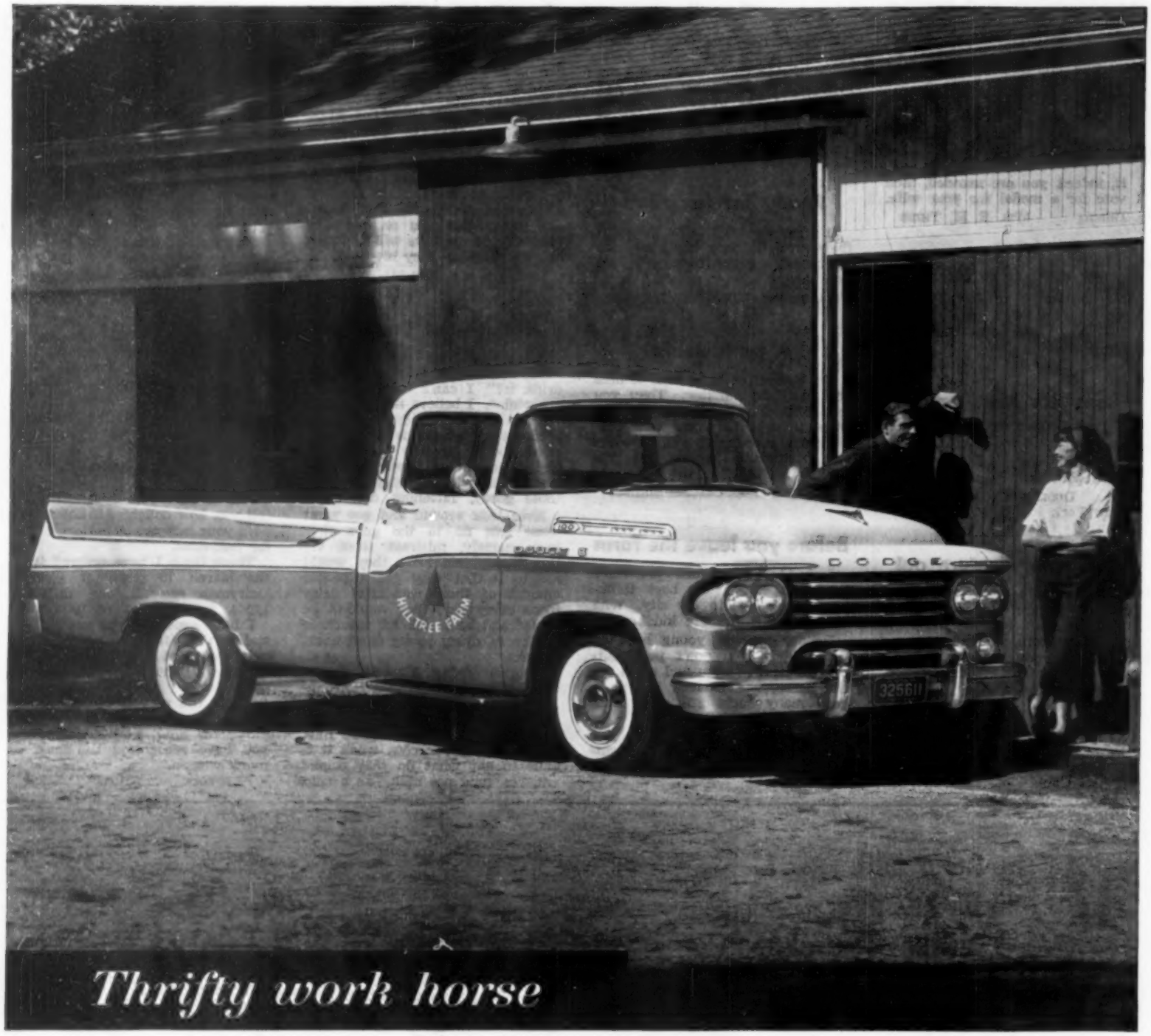
Solar Permanent CO. division of U. S. INDUSTRIES, INC. TOMAHAWK, WISCONSIN



Thrifty work horse

Hard worker . . . light appetite! Dodge Power Giants are 4-way leaders of the low-priced 3!

Dodge *Power Giants* are hungry for just one thing—work. Your *Power Giant* is always eager to tackle your toughest hauling job out in the field, and is so easy-riding and eye-catching you'll be proud to drive it on trips to town. Fact is, once you've gotten behind the wheel, you're sure to agree that Dodge leads the low-priced three *all four ways:*

Dodge is first in styling! You get style that *stays* in style—sculptured, flowing lines, massive chromed grille, striking dual headlights.

Dodge is first in V-8 power! Up to 27.5% more power than competitive farm trucks—for extra pulling power . . . safer highway passing . . . less engine strain and wear. Thrifty Dodge Sixes, too!

Dodge is first in payload! *Power Giant* construction adds strength without weight, to let you haul up to ⅓ more each trip. Saves time and fuel!

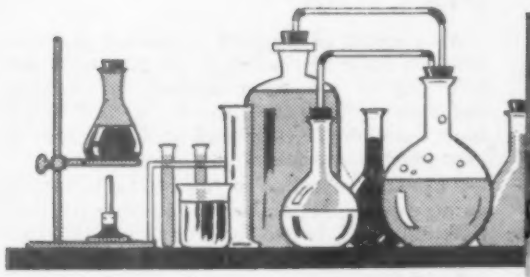
Dodge is first in economy! Dodge has low *first* cost, low *operating* cost. Exclusive Power-Dome V-8 engine design gives top mileage and stays healthy on low-cost *regular* gas!

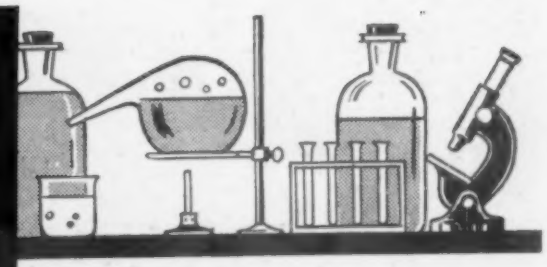
Buy your next truck the way you buy your other farm equipment: *compare* before you buy. And be prepared to be surprised at your Dodge truck dealer's deal—thrifty, dependable, hard-working *Power Giants are priced with the lowest.*

DODGE *PowerGiants*

HOARD'S DAIRYMAN
Founded in 1885

"Let's meet our critics with facts"





MORE RESEARCH, such as conducted by Dr. C. A. Elvehjem (right), University of Wisconsin scientist, and Dr. L. M. Henderson, is needed to assure milk's place in American diet. The project, sponsored by dairy farmers, proved value of amino acid trytophane as anti-pellagra food.

Milk is target for challenge from medical and health workers. We can't sweep criticism under the rug.

by Frank R. Neu

FOR many years cow's milk has been called "nature's most nearly perfect food." This idea has been challenged many times in the past, but it is doubtful if there ever has been a period so full of disagreement about the necessity for bovine milk in the human diet as we have right now.

During the past year milk fat has been repeatedly linked with coronary heart disease. Even though such eminent organizations as the American Heart Association have cautioned against any major changes in diet because of a lack of adequate evidence of the relationship between milk fat and heart disease, the idea of such a connection persists and is voiced frequently by other eminent medical and research authorities. This problem is far from solved.

Only recently Yale University health authorities attacked unusually high consumption of milk among students in that school because, these medical men say, there is a possible relationship between excess milk intake and the deposits of calcium in the body, such as kidney stones.

There has been much concern about the use of antibiotics and chemicals to destroy insects and the possibility that this material finds its way into the milk that is delivered to consumers. Reactions to antibiotics in milk among highly sensitive individuals have been suggested by some physicians.

For some time now milk has been behind the proverbial eight-ball because of fallout from atomic and hydrogen bomb explosions. Even though competent medical authorities have discounted the effects of such fallout of radioactive material, others still insist that there is far too little knowledge available now to warrant any less concern about this subject.

Overweight Americans . . .

Regardless of what medical controversies are raging over specific problems, there is general agreement among most medical authorities that excess weight is a major health problem among the American people. It is quite possible that milk, especially milk from which the fat has not been removed, is suffering more from this concern, overweight, than it is from any other controversies.

Sales of low-fat milk items — skim milk, cottage cheese, ice milk as a substitute for higher calorie ice cream — have been growing rather rapidly while sales of the products containing higher fat levels have shown little improvement. Milk products distributors, following the pattern of many other food products in pushing sales of lower calorie foods, have devoted much of their sales promotion effort to low-fat dairy products. This, of course, creates additional problems for the dairy farmers whose cows continue to produce milk with the fat in it.

An eight-ounce glass of milk contains approximately 160 calories. This comparatively high calorie count has been justified by the dairy industry, and by most nutritionists, since the glass of milk also contains a very high proportion of protein, vitamins, minerals, and other essentials of good health. Most of the nutritional knowledge available today, however, indicates that milk's greatest health values are in the nonfat solids.

But now come some medical and public health officials who state bluntly that they do not believe milk is essential in the adult diet provided, of course, that an otherwise well-balanced diet is consumed. This is definitely a minority opinion, but it can spread.

"Debunkers" exaggerate . . .

For a long time milk has enjoyed an enviable position among food products, especially as a food for children. It may be this very high position of milk in the public attitude that encourages "debunkers" to exaggerate so many of the claims being made today against milk.

There is no question about it; the anti-milk statements have been greatly exaggerated in the public press. Suggested leads which come out of research laboratories are magnified into headlines that are written deliberately to scare people into reading the articles. The qualifying statements, which usually make the reports under the headlines fairly factual, are lost because the readers have already been scared or because only the headlines are read.

To date, all the scare headlines about milk do not appear to have cut into sales of milk and milk products to any great extent, and many people feel that the ill-wind will blow over and leave things very much as they were.

One might cite the example of the cigarette cancer scare. Cigarette sales did drop for a year or two but are now setting records again. Tobacco has had more unfavorable publicity in recent years than has milk.

However, there is a difference between milk and cigarettes. The latter are largely consumed among adults who have a firmly established habit of cigarette smoking. Adults seldom change their habits very fast. They must be very frightened to make changes in habits.

On the other hand, milk drinking is not a universal adult habit in this country. As a matter of fact, most of the milk promotion carried on by dairy farmers, either locally or through the American Dairy Association, has been directed to increasing milk drinking among adults.

The statements, coming from medical and other authorities, that have been harmful to milk are more difficult to overcome than have been the anti-tobacco statements, for the very simple reason that smokers will more readily discount the claims against tobacco than will the non-milk drinkers ignore the anti-milk statements.

Suppositions or facts . . .

Milk's role in the human diet is subject to a great deal of controversy simply because facts about human nutrition are not nearly as plentiful as some people believe. Some of the statements about milk's benefit to man are based upon suppositions that have not been proved-beyond-doubt in the laboratory. This does not mean they are untrue, but they do not have full scientific backing.

The study of human nutrition is not nearly as advanced as is the study of animal nutrition. Much of the work in laboratories has been done with animals which are not always accepted as identical to man in function. It is not easy to feed human beings on a rigid schedule under laboratory control conditions. We do know that the inclusion of milk in milk-deficient diets among groups of children has produced some excellent results in better health, but the same has not been proved-beyond-doubt for adults.

Cow's milk, it must *(Turn to page 596)*

The author is director of public relations for the American Dairy Association. The opinions expressed are his own and reflect his conclusions after years of work directed to expanding the sales of dairy products.

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

MOISTURE TEST FOR SILAGE

A simple, accurate way of determining the amount of moisture in crops you plan to ensile is to use the "grab test." Just squeeze tightly for 90 seconds a handful of the crop, finely cut; release the grip and note its condition.

If juice runs freely or shows between the

fingers, the crop contains from 16 to 25 per cent dry matter and is too wet to make high-quality silage without treatment. Such a crop should be wilted or treated with a chemical preservative or ground grain.

If the ball holds its shape and the hand is moist, the crop contains 25 to 30 per cent dry matter. Additional field wilting will help.

If the ball expands slowly and no dampness appears on the hand, the crop contains 30 to 40 per cent dry matter and is in its best condition for ensiling legumes without treatments. Grasses still should have the preservative.

If the ball springs apart when the hand is opened, the crop contains more than 40 per cent dry matter. Only very young crops wilted to this condition can be ensiled safely. Others likely will mold in the silo unless stored with layers of wet crops.

This procedure is recommended by Charles Rogers, Ohio State agronomist.

NO CURE FOR DUTCH ELM

A plant pathologist with the Illinois Natural History Survey says there is no known cure for Dutch elm disease. Control is preventive only.

Dutch elm disease can spread from diseased to healthy trees through root grafts. More often the causative fungus is carried by European elm bark beetles. The beetles chew through the bark in crotches of young twigs.

Some of the spores in the fungus become dislodged from the beetles and get into the sap stream of the tree. There they reproduce and eventually become distributed throughout the tree. The fungus apparently interferes with conduction of water in the tree, causing wilting and eventual death. Once the fungus is in the main stem of a tree, it cannot be saved.

In order to control the disease, bark beetles must be prevented from feeding on healthy trees. This can be accomplished by thorough sanitation and spraying. The object of sanitation is to destroy breeding places of beetles. This involves burning the bark of diseased, dead, or dying stumps, trunks, branches, and twigs where the beetles breed. Once an infected tree is cut down, beetles can still breed in the bark of the stump. To prevent this, the bark must be burned or removed.

The object of spraying is to coat all bark surfaces of the tree with a poison (a DDT emulsion), through which the beetles cannot penetrate without being killed. If they cannot penetrate the bark, they cannot inoculate the tree with the disease fungus.

Sanitation and spraying must be a community-wide project. A single home owner has only a slim chance of saving his trees by spraying.

TO KEEP POND FROM LEAKING

There are many ways of preventing loss of water from farm ponds due to leaks in the dam or seepage.

A Rutgers University engineer suggests a sealing layer of puddled clay as a practical method when clay is handy. However, hauling, spreading, and firming this material takes time and money.

Various kinds of pond liners are now available to cover areas suspected of leaking. These include plastic and asphalt-saturated felts. They are lapped and then covered with a protective layer of soil or sand.

Chemical methods for making soil leakproof also are available, and are particularly useful in preventing dam leakage. Chemicals are forced into the soil by jet pipes and solidified to bind soil particles so water can't get through.

Science has even come up with what may be an answer to loss of water by evaporation. Recent studies suggest possibilities of using a fatty acid that forms an extremely thin coating over the surface of the water.

KILL THOSE BITING MOSQUITOES

Turn the tables on mosquitoes by making life miserable for them. That's the trick suggested by Wayne J. Colberg, extension entomologist at North Dakota State College.

Mosquitoes require stagnant water in which to develop. Deprive them of this by doing your best to eliminate standing water.

Mosquitoes are good at hiding. High grass and weeds make good mosquito cover. A few turns with the mowing machine or scythe will make things a lot more comfortable for you, and make things tough on the mosquitoes.

If it is impossible to drain off standing water, treat it regularly with DDT, methoxychlor or chlordane. This will kill "wigglers" before they can develop into adult mosquitoes.

You can spread a very light pyrethrum oil solution over a stock water pond without endangering livestock.

A residual treatment of DDT, chlordane of lindane will give you fairly thorough protection against adult mosquitoes. Spray such hiding places as around shrubs and tree trunks, along foundations and under eaves.

Oil or emulsion sprays will burn leaves. Use a wettable powder when you spray around plants.

Pyrethrum or allethrin sprays come in aerosol bomb dispensers and are effective indoors. Close the house for about 10 minutes after you spray.

Never use plant pesticides on livestock, advises the Colorado agricultural extension service. Pesticides are safe only when used as directed by the manufacturer. Never overtreat plants which later will be used as livestock feed.

FOR WEEDING SWEET CORN

As a result of research conducted at Pennsylvania State University, 2,4-D and water soluble dinitro are recommended for weeding sweet corn. They both can be applied at the time the field is cultivated in either pre- or post-emergence applications.

2,4-D is the cheaper of the two herbicides on an acre basis. It can be applied from planting time until corn is two to three inches tall. Best results were obtained when it was applied at the time of corn emergence. Cultivation following a post-emergence application should be delayed at least 10 days as the cornstalks may become brittle and subject to breakage.

The amine salt and the ester forms of 2,4-D have both given satisfactory weed control. The ester formulation may be volatile and its vapors affect susceptible plants at a distance. Spray drift from either the ester or amine salt will injure susceptible plants. 2,4-D may delay maturity of some of the early-maturing varieties.

Dinitro reportedly costs three to four times as much. Since it does not make the cornstalk brittle, it permits earlier cultivation following treatment. It is generally safer to use on sandy or stony soil and is easier to remove from spray equipment than is 2,4-D. It should not be used after emergence if corn has started to leaf out as it may cause a severe burn on the leaf.

The cost of chemical treatment can be held to a minimum by applying the herbicide as a part of the cultivation or planting operation and by covering the soil over the row only. 2,4-D applied in an 8-inch band over the row at ½ pound per acre with corn spaced 3 feet apart will cost less than 15 cents an acre.

BE CAREFUL WITH GASOLINE

There are several safety precautions that should be taken when filling a tractor gas tank.

O. L. Hogsett, University of Illinois safety specialist, says that a pint of gasoline mixed with air has the power of nearly 11 pounds of dynamite. Highly explosive vapors are formed whenever gasoline comes in contact with air.

Careless handling of gasoline (overfilling tank or spilling fuel) increases chances of a dangerous, costly explosion and fire.

Gasoline vapors are three times as heavy as air and are invisible. This makes it so impor-

tant to have your tanks outside buildings so that fumes cannot collect in large quantities.

Always shut off the tractor before fueling, and take special care not to overfill the tank. If you should spill gasoline on the tractor, wait at least 10 minutes before starting the engine so the gasoline can evaporate.

Roots must breathe, too!

To provide necessary oxygen, use minimum tillage; add organic matter often; and disk in green manure crops.

by K. C. Berger

TOO often we are so busy reading and thinking about new fertilizers, new insecticides, new fungicides, and machinery to grow bigger and better yields, that we forget about the basic factors of soil management for top yields. We forget that roots breathe, too.

We all realize that the tops of plants need air, and think nothing of it because they grow in air. However, we do forget that plant roots must have air or the plant will quit growing.

In a well-drained soil of good tilth, there is ample movement of air for plant roots. They don't require as much as do animals, but under certain conditions of poor drainage, high rainfall, and soil compaction, roots cannot get enough air. When this happens, the plants cease to transpire, that is, water does not move through the plants.

Growth may stop . . .

When nutrients do not move into the plants, growth stops and roots soon start to rot and die in the soil. Even though the injury is only temporary due to heavy rainfall, which eventually drains off, yields are still reduced.

Why do some soils have plenty of air for roots and others not enough? Can soils be made more porous so that air can get to the roots? What causes soils to be hard, so that roots cannot get air?

Let's look at some of the fundamental principles of soil tilth and soil structure to get the answers.

A soil of good tilth is one that is easily worked. The reason it is easily worked is because the soil particles are in aggregates. These aggregates are clumps of soil particles that are clumped together. They range from the size of buckshot to the size of walnuts. They are quite stable in nature, although loosely held together. It is in the spaces between these aggregates that we find air space and space for water in soil.

When a topsoil is well aggregated, water and air can easily penetrate and the surface is loose so that the soil is easily tilled.

Causes of poor structure . . .

All tillage tools destroy soil structure by breaking down aggregates. It is true, of course, that some tillage tools hurt soil structure much less than others.

On many farms today we work our land with tractors as our fathers and grandfathers used to do with horses. We run over the land just as many times with heavy, rubber-tired tractors as used to be done when tillage was done with horses with much less horsepower.

Actually, there is no good reason for doing this and much harm is done because of it.

There has never been a better tool invented for compacting soil than a heavy, rubber-tired tractor. The rubber tire fits into every depression, presses the soil down firmly to a depth of four to six inches, and the tillage tool that is pulled behind it loosens up the soil only in the top three inches. This leaves a hard, compact zone below this depth. These compact zones do not allow for good root penetration because all the pore spaces are closed.

When we get such conditions, rain does not enter the soil easily and we get a great deal of run-off. This will cause erosion of surface soil and complete loss of valuable nutrients in the topsoil. How, then, can we prevent this loss?

The only way to increase looseness of the soil and soil aggregation is by the addition of organic matter.

Recently it has been found that when the soil micro-organisms break down the organic matter they produce gum-like substances that bind tiny soil particles together into larger aggregates. These gums are found to be the most important factor in the formation of aggregates in the soil.

The amount produced ranges from 400 to 1,600 pounds per acre. These gums produced by the micro-organisms are just as effective in causing soil aggregation as are the wonder chemicals, Krilium and Aerotil, which cost around $1.50 a pound.

On this basis, ordinary amounts of organic matter produced in your own soil at no expense will have a value of from $600 to $2,400 per acre compared to the new wonder chemicals.

Soils need organic matter . . .

We should then make sure to add organic matter to our soils whenever we can and as cheaply as we can. This is done by taking good care of the barnyard manure and carefully working it into the soil, when applied.

It is also done by growing green manure crops wherever possible between other crops and by working the organic matter thoroughly into the soil so that the micro-organisms can decompose it.

These micro-organisms are in reality tiny plants and require air, food, and water for growth the same as does a corn plant. There are unseen millions of them working for our benefit in every spoonful of soil. Let's give them good working conditions.

Always disk first before plowing under cornstalks or a hay sod. Before plowing, cut it up as much as possible and incorporate it in the soil. This will distribute the organic matter much better throughout the plow layer and give the micro-organisms a chance to break it down.

When plowing under cornstalks, add 150 pounds of ammonium nitrate before disking so that the organisms will have nitrogen, which they need, to rot down the stalks. Disking in the organic matter before plowing gives a much better job of plowing. This also helps to avoid soil compaction since the ground will have to be worked less after plowing.

One disking after a good job of plowing should be sufficient when working the land for corn or other crops. The ground may look a little rough, but it will give a good seedbed.

Fall-seeded oats, planted somewhere between August 15 and September 15, also add organic matter. After picking corn for silo filling or after some canning crops, soils can be plowed in August and oats seeded in the rough, plowed ground at the rate of two bushels per acre. In most years, oats will grow up even to the point of heading out. In the winter time the oats winterkill and in the spring this straw can be disked into the soil. Because of their high nitrogen content at this stage of growth, they rapidly decompose and produce a great quantity of the beneficial gums in the soil.

THE END

The author is a professor of soils, University of Wisconsin.

DEEP ROOTS on this plant indicate loose, granular condition of the soil that allows ample movement of air for plant growth. This alfalfa produced four tons good-quality hay to the acre.

Care and operation of a side-delivery rake

WINDROWING at 50 per cent moisture causes more uniform drying of leaves and stems. Turn leafy portion to center and stemmy portion to outside of windrow.

Your hay rake is an important tool in the production of quality forage. Lengthen its useful life by careful handling.

by D. W. Bates and John Strait

THE side-delivery rake will function at its best only when properly adjusted and maintained. A good machine can be ruined in a relatively short period if abused.

It is worth your time and effort to inspect any new machine before using it. Bolt and nut fastenings should be inspected individually for tightness. Make sure that all cotter pins are in place and secured to prevent their dropping free.

Check the machine for misalignment of parts and for the assembly of such parts as chain, and idlers used as chain tighteners.

Turn the reel by hand with the drive mechanism disengaged to make sure it turns freely. While turning the reel, observe the various parts to see that they are properly placed and that they are operating without interference.

On rakes where the reel is driven from one of the ground wheels it is a good precaution to raise the wheel off the ground and turn it by hand to check the drive mechanism. If the machine assemblies work freely when turned by hand, there is little possibility of early failure as the machine is used.

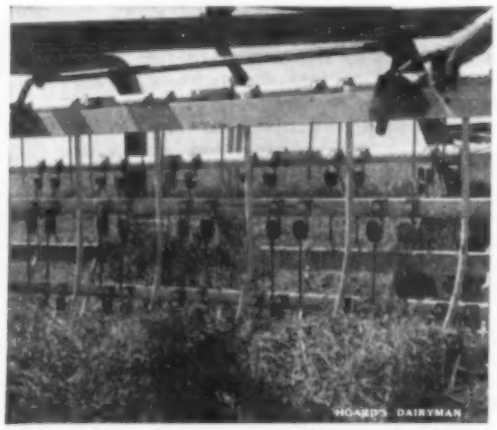
The various control and adjustment devices should be checked for proper functioning. The drive engaging mechanism, where one is used, should be properly adjusted. This adjustment assures that the drive is either fully engaged or disengaged. Failure of the control mechanism to positively and completely control engagement of the drive could easily result in damage to the drive members.

The rake should be adjusted according to instructions in the operator's manual for the crop and crop conditions.

After the rake has been thoroughly inspected, adjusted, and lubricated, the machine should be ready for field work.

The authors are staff members of the agricultural engineering department, University of Minnesota.

GROUND WHEEL supplies power to reel. Raise wheel off ground and turn by hand to check drive mechanism. All assemblies should work freely.



PITCH OF TEETH is controlled by bar shown. Tight windrows are formed when teeth are tipped backward; forward tipping forms loose windrows.

BENT OR BROKEN TEETH should be replaced or straightened and individual parts kept properly aligned. All rakes now have replaceable teeth.

TEETH may be damaged when reel is operated too low or when ground wheels hit a depression. Such use results in rapid wear of all rake parts.

Direction of travel . . .

The direction of travel of the rake in the field should be the same as that of the mower when the hay was cut. Maintaining this relationship between the direction of travel of the rake and the mower is most likely to result in the leafy top of the plant being placed in the center of the windrow while the stem ends are near the outside surfaces. Such arrangement of the plants in the windrow is highly desirable.

Windrowing the hay when it contains about 50 per cent moisture on the wet basis causes the leaves and stems to dry at more nearly the same rate. Turning the leafy portion of the plant into the center of the windrow and the stem portion to the outside is a further aid in obtaining reasonably uniform drying of all parts of the plant.

Correct ground speed . . .

Most side-delivery rakes are designed to operate at ground speeds of from two to seven miles per hour. Operating the rake at excessively high ground speeds is sure to result in costly repairs and rapid deterioration of the rake. The speed of operation of the rake influences the formation of the windrow to a considerable degree and that factor may limit ground speed.

The side-delivery rake may be used to turn windrows to facilitate drying, particularly after a rain. In turning a windrow the rake should be moved along the side of the windrow so that the rear end will have sufficient contact with the hay to turn it over. As the hay dries to a moisture content below about 30 per cent it should be handled as little as possible in order to prevent loss of leaves by shattering.

There are several adjust- *(Turn to page 598)*

CHOPPING alfalfa-Ladino-brome mixture in southern Wisconsin. This 12-acre field carried 30 registered Brown Swiss for the entire season. Herd averaged 13,150 pounds milk and 532 pounds fat in 1956 and 1957.

UNLOADING green feed into four bunks, 14 feet long, 4 feet wide, and 12 inches deep. There are 2 x 4's around outside edges and bunks are on 2 x 6 skids, which allow for easy movement around the feed lot.

GREEN FEEDING is practical and profitable

Tests rate it best for milk production on least acreage. Strip grazing, rotational grazing, and regular pasturing follow.

by Howard Larsen and Russell Johannes

AN EXPERIMENT has been in progress at the Ashland, Wisconsin experiment station for three years comparing rotational and strip grazing. Each pasture field is divided into two parts. One-half is rotation grazed with lots large enough to last for 10 days to 2 weeks. The other half of the field is strip grazed with a new grazing area given to the cows twice daily. The cross fence is moved morning and night.

This trial is not complete, but some interesting observations have been made.

Milk production has been good on both areas, averaging 30 pounds per cow per day for both groups for 3 years. This indicates that under either system, high milk production can be maintained. However, milk production **per acre** varied greatly between the groups.

Under strip grazing the herd has averaged 4,190 pounds of 4 per cent fat-corrected-milk (F.C.M.) per acre per year while only 2,411 pounds of 4 per cent F.C.M. was produced under rotational grazing.

In addition, it took 1.14 acres to carry 1 cow for an average of 86 days per year on rotation grazing while .7 of an acre was all that was required to carry a cow for the same number of days on the strip grazing area. These cows received about 85 per cent of their total energy from forage. Grain was fed at the rate of 1 pound of concentrate to every 7 to 8 pounds of milk produced daily.

.9 acre per cow . . .

A similar strip-grazing trial at the Marshfield experiment station showed that this intensified system of grazing could produce about 4,300 pounds of 4 per cent F.C.M. and required about .9 of an acre per cow for a 115-day season.

These trials seem to indicate a decided advantage in breaking our pastures up into smaller lots than we normally think of in rotational grazing. It would point to the fact that we might pasture our herds on 50 per cent less acreage by strip grazing on an intensified twice-a-day-change basis as compared to a rotational system where the lots were large enough to graze for 10 days to 2 weeks.

The smaller the lots, the more control we have over preferential grazing of the cattle and over damage of the forage by the cattle before they are able to consume it.

Strip grazing requires considerable fencing in order to provide smaller lots for the herd. Because of this, it is imperative that when using this system of grazing the farmer have on hand some type of posts which are easy to set and move and some light smooth wire. A battery-operated electric fencer has done the job for us. Some method of using spools on which the wire can be easily wound and unwound would prove a time- and labor-saver when fencing small lots.

Temporary fences . . .

The only semi-permanent fence in our strip-grazing operation was a lane across one side of the field with all other fences put in with temporary posts and wire. It is not advisable to make the cross fences permanent, even for a season. The size of lot needed will vary throughout the season, depending upon growth conditions.

About 800 to 1,000 square feet of area should be allotted each cow for a day's grazing when starting in the spring. This size must be adjusted according to the amount of forage waste, milk production, and amount and kind of available forage.

When using any pasture system it is important to have available water near the pasture area. Cows will not drink all the water they need if they must walk too far to get it. Portable watering tanks have worked successfully for us.

The practice of feeding dry hay on pasture seems to work out well. It might aid in preventing bloat. At the Ashland station, the cattle on both systems were offered hay free-choice. Their average daily consumption over the 3-year trial has been 6 pounds of hay per day. This amount was 15 per cent of their total dry matter consumption. This indicates that cattle will eat considerable amounts of fair-quality hay fed free-choice even while on good pasture.

Waste of forage . . .

Under a very intensified system of strip grazing there is considerable waste of forage in the field. At Ashland and Marshfield the average consumption of dry matter produced on the field for 3 years has been about 70 per cent. This means that 30 per cent of the forage which actually grew was not consumed by the cows. There are several factors which make high utilization on pasture difficult.

After the first time over a field, the cattle will refuse to eat the material which is growing in dung and urine spots on the field. This condition is aggravated as time goes on and becomes more serious each year that the same area is pastured.

In May of 1957 at Marshfield, some of this lush green forage left by the grazing animals was harvested and fed as green feed. The cows refused to eat it, but preferred stemmy, mature, year-old hay. This indicates that cows do not refuse to graze this material just because of the manure, but that some change has taken place in the forage itself which makes it unpalatable to cattle.

The selective grazing of the cattle is another problem which is always present in pasture management. Intensive strip grazing can help reduce this factor by keeping the cattle on a small enough area to supply their immediate needs. This can be carried out only to the point where milk production is not limited.

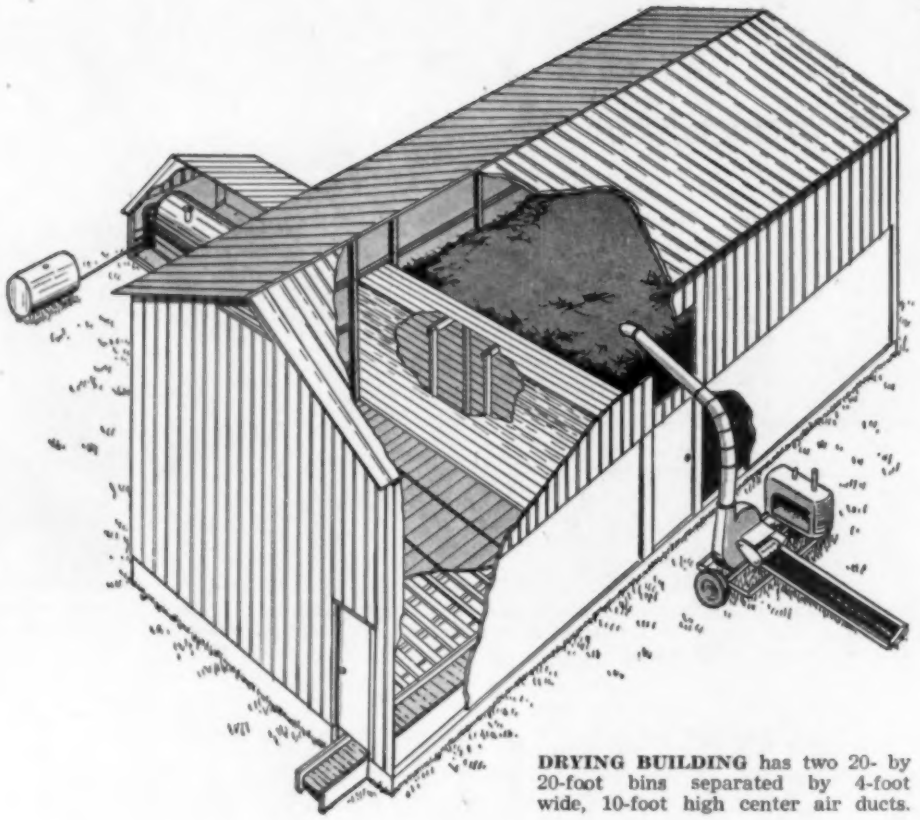
This selective grazing becomes more serious under strip grazing as the forage material becomes more mature. If the pasture always can be kept at a height of 6 to 12 inches, selective grazing can be kept at a minimum. However, it is a difficult task to manage pasture land for an entire season and maintain this optimum growth stage.

The growing conditions within the season vary so greatly that either one will run short of pasture in poor growing conditions or under good conditions the material will become too tall and mature. When pasturing this mature growth, the cows will selectively graze the succulent species and the succulent parts of plants and refuse the rest. *(Turn to page 600)*

Batch drying building works

This general purpose building will dry hay, grain, and either shelled or ear corn. When not in use for drying, it can be used to store ear corn.

by H. D. Bruhn



DRYING BUILDING has two 20- by 20-foot bins separated by 4-foot wide, 10-foot high center air ducts.

SINCE 1940, barn hay driers have become increasingly popular. With their success has come a demand for structures to dry corn and other small grains as well.

An interesting point regarding barn hay drying has been the apparent universal financial satisfaction with the procedure. Farmers' statements on the savings brought about by mow hay curing are almost unbelievable.

Never can we remember a farmer telling us that he did not think his drier was worth while. His only complaint was apt to be that it lacked the desired capacity or versatility to dry other crops.

Corn harvesting and storage is generally not so fortunate. Last fall a lot of corn went into the crib too wet for good storage. Some was harvested late with considerable loss and some stayed in the field most of the winter. We cannot expect to store field-shelled corn successfully in the northern states without facilities for drying the corn below normal field moisture at harvest time.

The small-grain crop is probably least likely to need special drying. In some seasons, however, specialized crops such as malting barley frequently turn to animal feed because the moisture was a little high at harvest.

While barn driers work well for hay, they are not suitable for other crops. The so-called "wagon" drying with heated air is much more versatile and can be used for chopped or baled hay, ear corn, shelled corn, and small grain. The difficulty here is with limited capacity. Harvesting cannot proceed faster than drying unless extra wagons are available.

However, the superiority of the product from "batch" drying in wagons brought about investigations which led to the design and construction of an experimental building for batch drying. It has been in use on one of the University of Wisconsin farms for three years.

Helps hold quality . . .

In planning this general purpose crop drying building, we had several goals in mind. Such a building should be able to dry efficiently any crop grown on the farm in such a manner that the crop could be harvested at the proper time for top quality. Drying capacity should proceed at such a rate that it would not slow up harvesting of any crop. Drying should be positive regardless of weather.

A drying building should serve as a storage bin for one crop to help justify the cost. As things have worked out in three year's experience we have been very happy with its performance in meeting these objectives.

The building itself is 44 feet long, 20 feet wide, and has 14-foot side walls. To reduce the danger of a spreading fire in case of the failure of some of the drying equipment, the building is located 35 feet from the barn and is of sheet metal on a rigid steel frame.

To get adequate drying capacity, heated air is used for drying. The heated air is blown into the building by a portable crop drier with a maximum oil-burning capacity of 9 gallons per hour and equipped with a fan driven by a 7½-horsepower motor. An air duct 4 feet wide and 10 feet high divides the building into two bins approximately 20 feet square.

The duct is equipped with doors directing the heated air to any or all sections of the perforated sheet metal floor. From the floor, the heated air passes up through the crop being dried. Either section of the building can be operated independently of the other.

Material can be removed from one bin while the other is being filled, or one bin can be drying while the other is being filled.

Material to be dried can be put into the building either with a blower or a conveyor and a distributor with essentially the same labor as required to put it into any storage unit.

20 tons per day . . .

Drying performance has been entirely satisfactory. Fifteen to 20 tons of hay field-dried to 35 per cent moisture is ready to go into the barns at an average of 20 per cent moisture the day after it is put into drying building.

One thousand bushels of shelled corn at 24 per cent can be reduced to 12 per cent moisture in 24 hours, and 1,500 bushels of oats can be dried per day. In the last three years we have dried about 10,000 bushels of corn annually.

Baled hay frequently has been dried in the building with satisfactory results. However, any time hay is put into bales it is harder to dry than long or chopped hay. Drying costs are increased and considerable labor is involved. If it is necessary to dry bales, a drying building probably is as good a way as any to do the job.

The daily drying capacity of this building probably is in excess of average farm harvesting rates because with the large bins, drying can be an around-the-clock operation. Although you only harvest during daylight hours, drying can go on all night because of automatic con-

POWER-OPERATED GATE pushes dry grain into conveyor carrying it out of building. Operates like movable front end gate in a chopper wagon.

ELEVATOR dumps dried grain into truck which carries it to storage. Normal removal rate is 50 bushels a minute. Truck was loaded in 15 minutes.

The author is a professor of agricultural engineering, University of Wisconsin.

trols that are available for portable driers.

Drying usually is more efficient in a building designed specifically for drying than in an existing structure converted for such use. Therefore, the cost of drying usually is lower in a special drying structure.

Conveyor removes crop . . .

To mechanize the removal of dry material from the building and to transfer it to storage, a conveyor is placed below floor level the full length of the front of the building about two feet inside of the front wall. The conveyor is covered with short sections of perforated floor. As the building is emptied, these sections are removed allowing the dry material above to drop into the conveyor and be carried out.

As the hay leaves the building it drops to an inclined conveyor which carries it up into the barn where it is distributed in the mow.

Small grains and corn are carried out of the building in the same conveyor and then elevated to trucks with an inclined conveyor. If the grain and corn storage building were near, the inclined conveyor could dump directly into the storage.

Each bin of the drying building is equipped with a power-operated, movable gate suspended from heavy door tracks. The gate is placed against the back of the bin before filling. As a bin is emptied, the gate is moved toward the conveyor and pushes the material ahead of it.

Shelled corn and small grain are moved out of the building with no appreciable manual labor. The rate of removal is approximately 50 bushels per minute. Thus, a bin can be emptied of shelled corn or oats in about 30 minutes, and the manual labor consists mostly of pushing buttons and shovelling out the small amount missed by the moving gate.

Uses false endgate . . .

The power-operated gate can be moved either with cables or operated hydraulically. Cable-operating equipment was originally installed in both compartments of the building. Later, one compartment was converted to hydraulic operation. The cables to move the gates are pulled by a drum made of 3-inch, extra-heavy pipe mounted under the floor. The drum is operated by a chain drive from an electric motor-driven, gear-type speed reducer located in the main air duct.

The cable-operated unit was excellent for hay but had to be cleaned out when drying grain as the grain tended to flow down into the drum space.

The hydraulically-powered gate works well on both hay and grain. An electric motor operating the pumps is located in the portion of the building housing the crop drier. Remote-control hydraulic valves are used, and the gate itself is pushed out by long-stroke hydraulic rams. This system is trouble-proof.

Its main disadvantage is cost, as at this time, much of the equipment is not generally available locally. Work is still being carried on to simplify both of these systems and to reduce the cost.

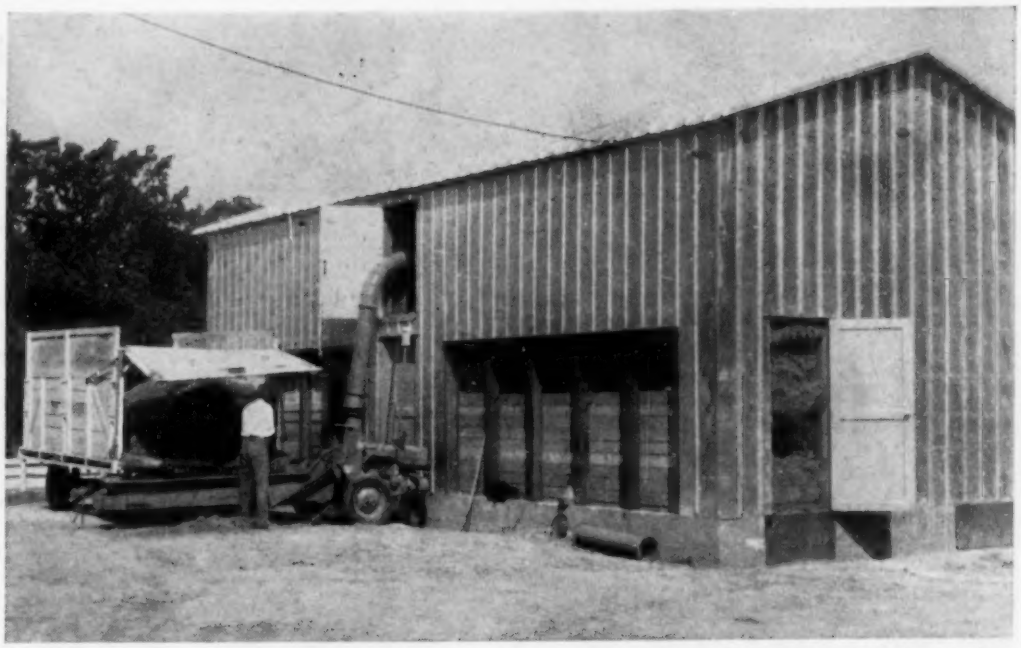
Used for storage . . .

After the last corn is dried in the fall, there is little use for a drying building until the following summer. This building makes an excellent corn storage structure. It has a storage capacity of 3,000 bushels of ear corn and approximately twice that for shelled corn.

Farm crop drying is not a rich man's toy. Is is just plain good business in many cases. There is no one "best" way. Size up your overall operation. What crops are you having trouble harvesting and curing? How much are your losses because you have to wait for the weather or because crops spoil in storage? How much could you save on purchased feed if you had real good hay?

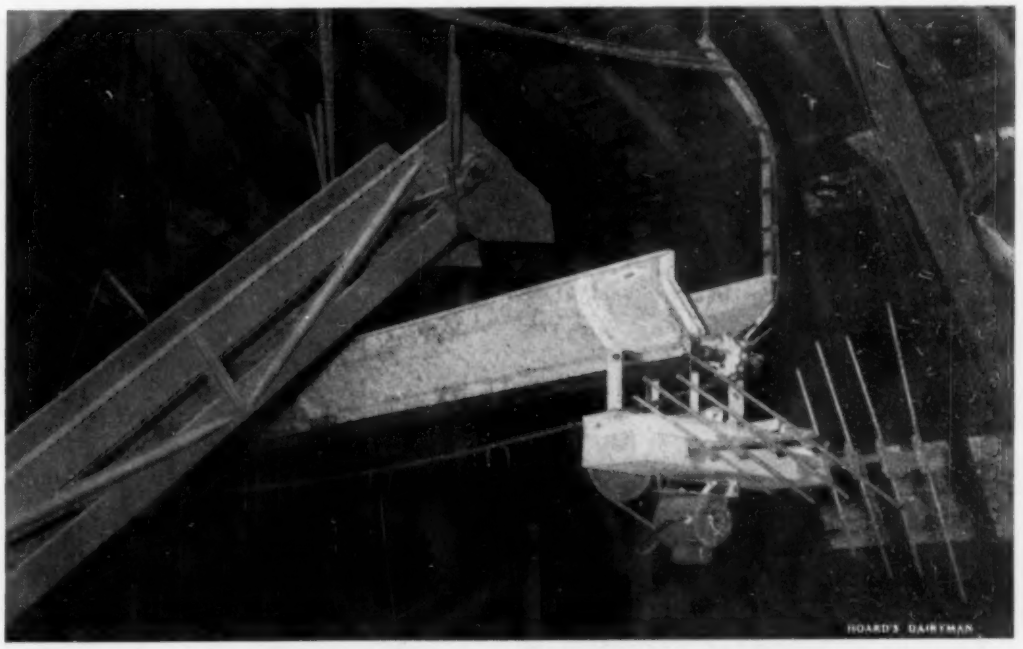
There probably is a system that would help you, and it does not necessarily have to be the most expensive to be best. Frequently, if a storage structure is to be built, the additional cost of making it possible to use the structure for a drier, also, is easily justified.

THE END



CHOPPED ALFALFA with 30 to 40 per cent moisture content is blown into building. Drying is finished with heated air in 24 hours or less. An adjustable elbow and hood are used on the blower to distribute forage. A conveyor and automatic distributor also could be used.

DRY CHOPPED HAY is brought out of drying building with horizontal conveyor and dumped into the inclined conveyor which carries it up into the barn to be distributed in mow. Conveyors cause much less leaf shattering and separation of dry hay than do blowers.



HORIZONTAL CONVEYOR in roof of mow distributes dried chopped hay. The unit is suspended from old hay track in order to facilitate distribution of dry hay evenly over entire mow. This equipment also works well for spreading wilted hay over a mow hay drying system.

Automation streamlines D.H.I.A. records

Maryland dairymen and supervisors are fast becoming sold on this new method; like feed information; records more nearly accurate.

by Andy Feeney and Bob Appleman

QUICK ANALYSIS of herd is possible through electronically-processed records. Here co-author, Bob Appleman, seated, studies herd record book with Fred Downey.

HAND-WRITTEN records have almost completely disappeared in Maryland's Washington County Dairy Herd Improvement Association. The age of automation has moved in and displaced a holdover from the past that once was almost as near to farmers' hearts as the cows themselves.

Automation has not replaced record books. In fact, for the most part, they are even more highly regarded than before. It's just the old manual method of tabulating the records that is gone. In place of the manual method is an automatic system which gives the farmer more information about his cows and gives it to him quicker with less chance for error. Further, this information is in print, as easily read as the type on this page.

Maryland is one of 10 Northeast states cooperating with the Dairy Herd Improvement section of the U. S. Department of Agriculture to introduce this new record system to the dairy industry. It's sometimes called electronic record keeping because data are processed in electronic machines similar to those used in industry and research. Maryland's records are processed at the regional computing center located at Cornell University in New York.

The authors are extension information specialist and extension dairyman, respectively, at the University of Maryland.

Available to all members . . .

The service is available to all D.H.I.A. members in the state. The Washington county association is unique only because, with the exception of one member, it completely converted to the electronic system in less than a year after it was available.

A thorough educational job by Mark Miller, county agent, laid the groundwork for the rapid wholesale conversion. Adding to the educational effort was J. R. Schabinger, extension dairyman. And, finally, the progressive D.H.I.A. board of directors passed a resolution, effective in February 1957, that all members convert to the electronic system in one year.

By September 1957, more than one-half of the members had already converted to the electronic system. By the end of the year only one of the 66 original members was still using hand-written records. Electronic record keeping is a voluntary program.

As this is written, members of the Carroll county association also have voted to convert all records to mechanical processing. Other associations may follow.

Members glad they converted . . .

The test of the electronic system is the attitude farmers have toward it after a fair trial. In Maryland it is passing this test with flying colors. After completing a year under this new system the great majority of members throughout the state are enthusiastic, only a few are lukewarm, and not one has made known a preference for the old system.

Earl Grove, Sr., president of the Washington

MORE HERDS can be handled and better service rendered. Supervisor Bill Pitsnogle discusses feeding suggestions with John Eshelman.

EASE OF READING makes electronically-processed records popular. Earl Grove, Sr. helps his son transfer herd book records to 4-H record.

county association, agrees with a number of other members that readability is one of the big advantages. Readability, along with a strictly uniform system for all members, makes it easier for county agent Miller to assist dairymen.

He says that in the past it was discouraging to go to a herd book and have trouble finding information, have difficulty reading it, and many times even finding mistakes. "Machine records are easier to read and are correct," he says.

Simplicity, once members get used to the system, is another advantage. Earl Grove, Jr., 11, has taken a keen interest in records since they have been processed by electronic machine. He has two cows in production, and he looks at the monthly reports as soon as they come in to see how his cows are doing in comparison with those owned by his sisters; Mary Ellen, Dotty, and Florence. The 11-year-old never made much effort to interpret and use the old hand-written records.

New feed interest . . .

Electronically processed records give several types of data that were not available before, but it appears the new information most valued by members of the Washington county association is the feeding recommendations.

John Eshelman particularly likes the use of body weights for calculating grain recommendations. "It only stands to reason," he says, "that big cows eat more forage, and little cows giving a lot of milk need more grain."

Earl Grove, Sr., admits that before the electronic system became available he was a little careless about reporting good feed information and knew the feed summaries had little value. "It was interesting to note," he says, "that when we increased hay consumption, the grain recommendations on the mechanically processed form were lower. It convinced us that the machine could be a valuable aid. The electronic machine has caused us to watch the feed information more carefully."

The association's three supervisors all have noted that farmers are putting more emphasis on feeding. The general reaction reported by supervisors is that farmers are not necessarily following feeding recommendations to the exact pound, but there is a great deal more awareness of feeding information and more farmers are using the recommendations as a guide.

One of the supervisors says that many of the farmers he serves had little use for feeding information before. "I had only one dairyman 18 months ago who wanted feed information," he says, "and now 75 or 80 per cent of them are using this information as an aid to their feeding program."

County agent Miller has noticed the new interest in feed information, too. "Dairymen are much more quality conscious about feed than ever before," he observes. "I believe this is going to be a real tool for herd improvement."

The electronic system is creating the same new interest in feeding throughout the state. Previously, feed records often were only "guesstimates." Now, dairymen using the new system are quite concerned whether or not each individual cow is getting enough energy to maintain production. Several Maryland dairymen are following the grain recommendations very closely and believe it is the best guide available.

Of course — and this is important — farmers who adhere closely to the recommendations are taking time to be sure the supervisor gets the correct feed information in the first place, so the machine can give them the best recommendations.

In the same way that feeding recommendations are no better than the original feeding information given the machine, it is also true the final information is no better than the supervisor who takes and tests the samples and enters the original data in forms for automatic processing. Both of these problems tend to diminish, though, as supervisors and farmers get accustomed to the system.

Supervisors can do more . . .

Automation typically reduces the need for manpower, or at least enables each man to do more in a given time. Automation in dairy record processing is no exception.

Supervisors are able to do more in less time. Bill Pitsnogle relates this typical example: "On one 43-cow herd, it takes me 3½ hours to weigh the feed being fed, take samples, run the butterfat test, and complete the monthly barn sheet. Under the old system, it took me at least 6½ hours to do a less complete job, and it stood a big chance of having more errors.

"Some farmers have been afraid that because of the streamlined system I would not be available to help with herd analysis problems. I feel, however, that although I am handling more herds than before, I still have as much or more time to help the individual dairyman."

It used to keep three supervisors busy to handle 66 herds. Now they handle all the standard D.H.I.A. herds plus 16 owner-sampler herds, and claim they are still able to do a more complete and more accurate job. Eventually, they plan on doing at least 60 owner-sampler herds along with 60 herds on standard D.H.I.A. test.

Provided the owner-sampler program continues to grow as it has the past year, it will mean that automation has allowed an increase of 54 herds on test in Washington county, with no increase in the number of supervisors.

The few farmers who are not sold on automation really are not opposed to it as much as they are attached to the old herd book. Fred Downey is a case in point. He says the new system is "all right," but he also thinks the old herd book was "all right."

Summing up the electronic system in Washington county, county agent Miller says, "Production records unquestionably are more accurate. In addition, all information is completed each month and every dairyman is getting everything he pays for and deserves." His remarks apply equally well to the rest of the state of Maryland.

THE END

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TRADEMARK

FEEDING

by N. N. Allen

Questions from our readers

Do not use greases and oils to prevent sucking. If carefully handled molasses will not cause milk odors.

A LETTER from Wisconsin brings this question, **"Is there any danger of hurting calves by using compounds on their ears and teats to prevent sucking?"**

This person is thinking of the possibility that the calves might swallow enough to be harmful. This will depend on what is used. If any manufacturer were preparing and selling a compound for this purpose, we would expect that he would check pretty carefully to be sure it is non-poisonous.

I've seen a lot of homemade products tried for this purpose. These have included machine oils and greases, in some cases with generous amounts of pepper or other materials intended to make it very distasteful. Most of them were not too effective. Calves that have developed this habit are often quite persistent, and will lick off substances that we would expect to be distasteful.

We would not recommend using greases or oils. Perhaps most of them would be harmless, but some of the transmission oils and greases have substances added to make them do a better lubricating job which are very harmful to animals even in very small amounts. There have been cases of heavy losses from what has become known as X disease, which has been traced to such oils getting into feed from grinding or pelleting machinery.

Some helpful suggestions . . .

Feed manufacturers are now quite careful about the kind of greases they use if there is any chance of contaminating the feed. If you are thinking of using a commercial preparation recommended for this purpose, take it to your veterinarian or druggist and have him take a look at the label to make sure that only harmless drugs have gone into it. Or, he might be able to suggest something obnoxious to the taste, but harmless.

Sometimes we can do a good job of preventing this trouble by other means. The sucking usually occurs right after milk is fed. If the calves are tied for milk feeding, it will help to keep them tied for a while and feed their grain before turning them loose.

Using nipple pails with very small openings in the nipples so that they have to work a long time to get their milk is another way that is sometimes effective. Many times dairymen will make large openings in the nipples so the calves will get through more quickly. It may save some time, but it does encourage sucking.

Another letter asks about the value of the vitamins of the B group for cows. Over 30 years ago, it was found that cows seemed to get along well on feeds that were extremely low in vitamin B. It was found that the bacteria growing in the rumen or paunch manufactured plenty of this vitamin for their needs. Since then it has been found that the vitamin B of those days was really quite a number of vitamins, but none of the group seems to cause a feeding problem with cattle.

Theoretically, at least, there might be a problem with young calves, since there is not much growth of rumen bacteria until they are eating forages and grain. Deficiencies of a number of the vitamins in this group have been produced in calves, showing that they are required by cattle. However, the feeds used were prepared with materials very low in the vitamins.

With calves fed in the normal way, there does not seem to be a problem even though no special effort is made to furnish the B vitamins.

Molasses and milk flavor . . .

All the way from California comes the question: **"Will molasses when fed to cows have any bad effect on milk flavor?"** Molasses is fed quite extensively to cows and does not ordinarily cause a flavor problem. Its odor or flavor does not pass into the milk through the cow's system as is the case with some feeds. But it is a feed with a pronounced aroma.

Even though its odor is pleasing and appetizing, it would be entirely out of place in milk. And milk does pick up odors pretty easily. If you get any molasses odor or flavor in milk, it is probably due to careless handling of the milk in a barn where molasses is fed and where the odor of molasses is strong in the barn air.

We hear complaints from cheesemakers occasionally, that they have trouble making good cheese from milk of cows fed molasses. It is unlikely that molasses would change the composition of the milk in any way that would affect the quality of the cheese.

Silages are also taboo with some cheesemakers, particularly for cheeses made from unpasteurized milk. Here the trouble seems to come from silage bacteria getting into the milk and upsetting the curing fermentations.

Molasses might cause a similar problem. It adds moisture to the feed, which along with the sugar could give yeasts and bacteria a chance to grow. Then, if the fermenting feed should get into the milk, trouble might result.

So, if using much molasses, take particular care to keep the mangers clean and be careful in handling the milk in a barn that is smelled up with molasses. It is a good feed and need not cause any problem of milk flavor or cheesemaking trouble.

The Army captain looked sternly at the young soldier and demanded, "Private Jones, where is my horse I said I wanted shod?"

The private turned white. "Did you say shod?"

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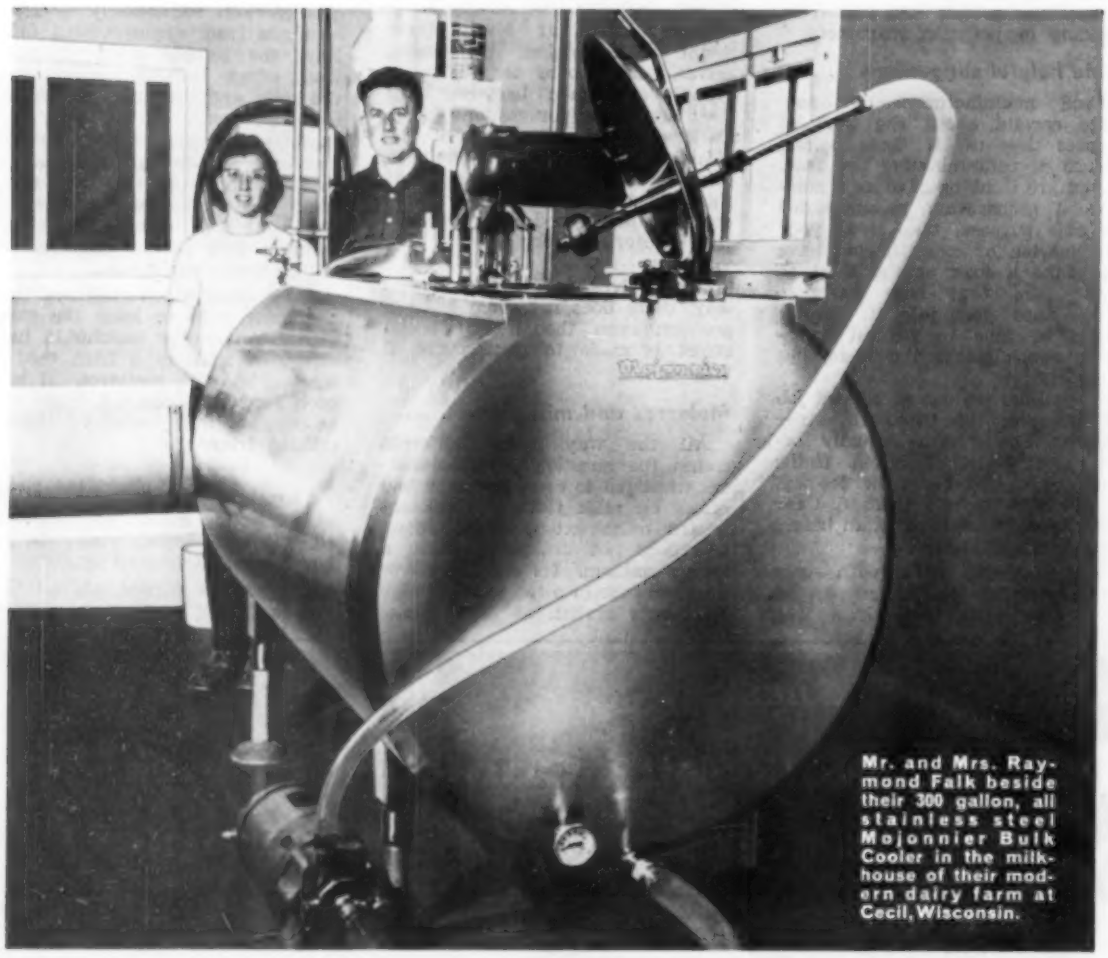

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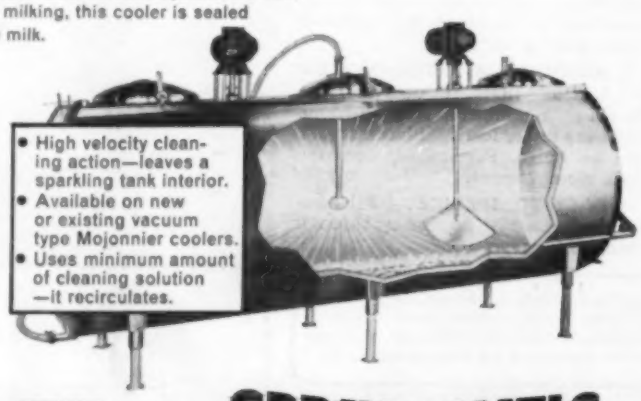

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"Let's meet our critics with facts"

(Continued from page 585)

be remembered, is nature's creation for the calf. That man has been able to expand the productive capacity of the cow to produce far more milk than the calf needs should not be interpreted to mean that milk is therefore almost perfect for man. This may very well be true, and there is some evidence very strongly in favor of the idea, but it is also true that the idea that milk is essential in the adult human diet is largely an assumption at this point.

Even among human infants the necessity for mother's milk is generally conceded to end not too many months after birth.

Americans today have the greatest variety in diet of any people who have ever lived. The average span of life among Americans has constantly lengthened. There are questions among scientists as to whether this longer span of life should be attributed largely to our varied diet or to other environmental conditions.

Competent challengers . . .

The role of milk in our diet is being seriously challenged by people whose viewpoints cannot be ignored because they are competent research people whose views are respected. It should be kept in mind, however, that other food products also are being challenged.

Dairy farmers today are investing millions of dollars in efforts to increase the sales of milk and milk products, either through the American Dairy Association and the National Dairy Council, or various state or local promotion programs. This effort certainly is necessary and highly commendable and should be expanded even more. Perhaps some additional effort is needed in other directions.

Certainly the attempt to increase adult milk consumption is hampered by the increasing number of attacks on milk as an adult food. But in the adult area lies the only big hope for any great expansion of milk sales because most children consume about as much milk as the nutritionists today believe necessary.

Evidence still favors milk . . .

The weight of evidence established by highly regarded research men still is heavily in favor of milk. Dairymen should waste no time in making this clear in all their promotional programs.

But the anti-milk statements cannot be swept under the rug. They cannot be counteracted by merely trying to overlook them or to launch counterattacks against the people who make these statements; except, of course, in those instances where the statements are issued by people who hold no valid authority in the medical or research fields.

There is only one way in which the uncertainty existing today about milk's role in human nutrition can be removed, and that is through research by well-qualified scientists whose findings will be accepted by other scientists.

Research usually is expensive, and very often it is painfully slow in producing any reportable findings. Much of the effort winds up being discarded but this is seldom wasteful since all avenues must be explored to remove doubt.

At this time, when milk's role is in doubt among some very competent scientific people, a new approach to research to learn the facts about milk in human nutrition could

be very helpful in several ways.

A research program designed to find out exactly what happens when milk enters into the human digestive system, how each component of milk — its protein, fat, minerals, vitamins, and so forth — enters into the nutrition of the body, is the only approach that can eventually provide the information which is needed to clear up any doubts about milk. This job, of course, could be left to be done in the present rather haphazard way, but it will take longer and cost more.

This certainly should not mean the discarding of any so-called practical research now being done on milk and dairy products, much of which is designed to answer some immediate problems. The general approach must be set up on a long-range basis, with adequate funds provided to employ the services of the most able scientists and their laboratories.

Funds for such research might come from several sources. Some of the money now being used in sales programs might be directed into basic research, although it would seem unwise, even with the facts we have in our possession today, to diminish the ability of the dairy industry to talk to consumers about milk and milk products. But, if no other source of funds were available, this diversion of sales promotion money to research would, in the long run, probably be more profitable for the dairy industry.

Dairymen who are not now participating in the promotion, research, and education programs underway might well take a second look and decide that their financial support of the various efforts could supply the funds for the research program suggested here.

Processing and distributing branches of the dairy industry have, of course, a very direct and immediate financial interest in milk and should be willing to allocate more of their funds to a research program that would gather the facts needed; or, at least, try to assemble these facts.

Today consumers are spending approximately $10 billion each year to buy the products of the dairy industry. It is very doubtful if the industry is spending as much in basic and practical research as are other major industries of this size.

Must invest more . . .

Consider the many millions of dollars going into research in non-food industries for improvements in the mechanical gadgets which people use. Yet man's well-being is far more dependent upon the nutrition of his body than it is upon mechanical products. Several additional millions of dollars per year, invested in research to protect the dairy industry and to provide possible reasons for greater expansion in the future, would seem to be a very small price to pay.

Digging out the facts about milk's full role in human nutrition is one of the rewards of such a program. If those facts produce evidence that the industry must change some of its ideas about milk's role, then it is best for the dairy industry to know this and to do something about it, rather than to learn from outside sources and suffer the humiliation that usually comes when someone has the opportunity to tear asunder long-standing suppositions.

There could, in addition, be some very immediate benefits to the dairy industry from such a research program. A well-conceived plan of research, set up in cooperation with medical and scientific groups, would prove to these people once more that the dairy industry is interested in and works for public health.

The medical and other scientific authorities who have attacked the dairy industry, because the industry is spending millions of dollars to promote more milk sales and seems to be neglecting basic nutrition research, certainly would change their attitudes in most cases and perhaps become among the industry's staunchest supporters.

Would gain allies . . .

It is far better for the dairy industry to be in partnership with the medical and other scientific authorities, who consider themselves guardians of the public health, than to be quarreling with them. The direct day-to-day influence of these people on public attitudes may not seem to be far-reaching, but this is an illusion and becomes more so as the educational level of the American people rises.

The problems in nutrition which face the dairy industry today cannot be solved by the ostrich approach. Nor can they be solved by name-calling. All the nasty names applied to oleomargarine in the years of struggle with that product did not prevent oleo from reaching supremacy in the food stores where the homemakers do their buying.

The research approach outlined here, whether it is handled through existing organizations or through the establishment of a special dairy research foundation, provides for the dairy industry an opportunity to step into the public spotlight as a champion of the consumer's good health.

The mere announcement that the dairy industry had established such a program to do a thorough job of studying milk in human nutrition would be the best public relations the industry could devise at this time. It would not have to be a negative announcement but could be built on the very positive basis of the dairy industry's decision to help improve our nutritional knowledge for the benefit of all humans.

This is an urgent job for everyone in the dairy industry, not for just the dairy farmers, or the processors, or the machinery manufacturers. It is a fundamental necessity, one that will require money, effort, patience, and, above all else, determination and coordination.

THE END

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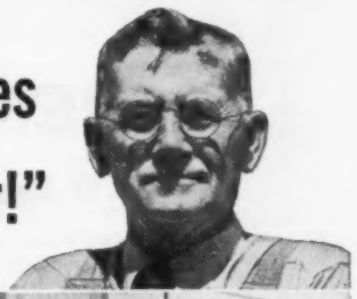

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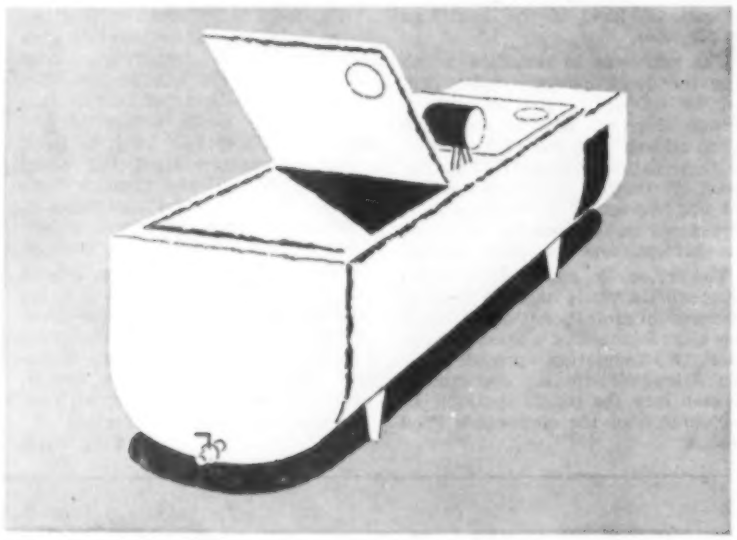

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Side-delivery rake

(Continued from page 588)

ments for a typical side-delivery rake. These influence its performance and determine in part the rake's useful life.

Perhaps the most important of these adjustments is the one that controls the height of the reel and teeth above the ground level. The tips of the teeth should be operated as high above the ground as possible and still do clean raking.

One-inch clearance . . .

A clearance of one inch between the tips of the teeth and the ground is about correct for average hay field conditions. If a trial adjustment indicates a greater clearance can be provided and the material is cleanly raked, the higher setting of the reel should be used.

In no case should the teeth be permitted to continuously contact the soil. Where the teeth are digging into the soil, excessive operating stresses are placed on the rake parts. This results in increased draft, accelerated wear, and bent and broken parts.

If when operating the rake over an uneven field, it isn't possible to prevent the teeth from striking the ground frequently, the ground speed should be reduced. This holds true also where obstructions or deposits such as gopher mounds are often encountered.

A further advantage of operating the reel as high as possible is that stones are less likely to be raked into the windrow. Hay is less likely to be contaminated with dust.

The rear end of the reel should usually be set slightly higher than the front end.

Vary angle of teeth . . .

The teeth can be angled so that they are pitched forward or backward with respect to a perpendicular position to the ground surface. If the teeth are tipped slightly backward of the perpendicular, a rather tightly-formed windrow will be made. A windrow of this type is desirable where green hay is being raked and moisture retention is desirable, as might be the case in making grass silage.

Where a loose, fluffy windrow is desired, the teeth may be pitched forward of the perpendicular position. This gives a decided lifting action, which makes for a more loosely-formed windrow. This tooth setting also is desirable when the rake is used for turning a windrow.

The reel speed on some rakes may be changed by changing sprockets in the reel drive mechanism. On a power take-off drive rake, the reel speed can be effectively changed by selecting an appropriate forward speed gear and throttle setting of the tractor.

A higher reel speed may be used to make a loose windrow. A reduced reel speed is best when raking material susceptible to shatter losses, such as soybeans, or seed clover.

Grease often . . .

The rake should be lubricated at intervals recommended by the manufacturer and specified in the operator's manual. Be sure to use the type and grade of grease or oil specified.

The gear box should be filled with the correct oil or grease prior to starting a new rake. Check the oil level regularly when the rake is in use. A weekly interval between checks is suggested. It is a good practice to drain the oil, flush the gear case, and fill with new oil at the start of the haying season.

Universal joints, tooth bar bearings, spider pivot bearings, and wheel bearings should be regularly lubricated with the grease specified. Some rakes are furnished with sealed anti-friction bearings which are lubricated for the life of the bearing.

Many rakes are equipped with a roller drive chain between the ground wheel and the gear box. These roller chains contain, in effect, many sleave type bearings. The service life of the roller chain can be increased greatly by periodic cleaning and oiling.

The chain should be removed from the sprockets for proper cleaning. Soak or dip the chain in kerosene or diesel fuel, to remove old oil and dirt. Then wipe the chain dry and oil it with a light grade of lubricating oil. A paint brush works well for applying oil to the chain.

Where the rake is left out of doors all winter, it is a good practice to clean and then coat roller chains with a heavy oil or grease. Before the rake is used again the chain should be recleaned and oiled with a light lubricating oil. This procedure will protect the chain bearing surfaces against corrosion and thus extend the useful life of the chain.

Replace broken teeth . . .

Maintaining the side-delivery rake is largely a matter of replacing badly bent or broken teeth and keeping the individual parts properly aligned and adjusted.

Badly bent teeth which strike the reel stripper bars should be straightened or replaced along with

your

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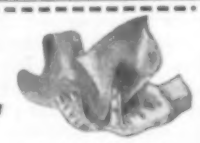

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any broken teeth. The rake cannot do a good job of raking if the teeth are badly bent or missing.

The reel stripper bars should be maintained in their proper position and shape. They are important when raking against a cross wind or when raking heavy swaths, or material which tends to cling to the teeth. Noisy operation can be avoided to a large extent by making certain the teeth do not strike the stripper bars.

Straighten bent tooth bars. If they become distorted from their original shape they can cause bearing failures and result in a poor job of raking.

Remove hay which has become wrapped around rotating parts. This material can interfere with lubrication, impose increased bearing loads, and increase the draft of the implement. A small amount of material wrapped on a rotating member may cause a large amount to be picked up. Wrapping could then occur to an extent sufficient to cause breakage in some part of the machine.

Many side-delivery rakes are damaged in transporting them about the farm. The operator should be particularly careful when pulling a rake through a ditch or depression and when pulling it onto a raised roadway. The reel should be raised to its highest position for transport.

THE END

Surplus milk to calves

New Zealand is considering a proposal that at least 10 per cent of its milk output be used to feed veal calves to a heavier marketing weight (New Zealand usually sells dairy calves at an early age for veal). This could reduce exports of dairy products by about 10 per cent.

Less labor per cow with larger herds

How labor requirements on a dairy farm decrease as the size of the herd expands is made clear in a recent chore study by research economists of the U. S. Department of Agriculture and the University of Minnesota.

The study shows that to care for a 10-cow herd for one year takes an average of 129 man-hours per cow, while a 30-cow herd requires only about 80 hours per cow.

Dairy farming is and has been one of the biggest consumers of labor among all farm operations. Currently, it takes 52 man-hours of labor on a dairy farm to produce $100 worth of product. Only tobacco has greater labor needs. In contrast, the requirement for $100 worth of product in beef raising is about 22 man-hours, and in broiler raising it is only 13 man-hours.

The recent analysis of dairy operations by L. M. Day of U.S.D.A.'s Agricultural Research Service and H. J. Aune of the University of Minnesota pinpoints the precise chores on which most labor can be saved when herd size is expanded. This study was made in southern Minnesota where the year is divided into a 29-week winter and a 23-week summer barn period.

For a 15-cow herd, 23.7 man-hours are needed weekly in summer and 35.2 man-hours weekly in winter. For a 20-cow herd, 27.9 man-hours are needed weekly in summer and 41.6 man-hours weekly in winter.

In the summer, an extra cow above 15 requires .83 hours of care each week. Well over half this time is needed for milking. One means of saving time is to use a milking parlor, which is a time-saver in itself and also makes possible the installation of a pipeline milker at a much lower cost than in a stanchion barn. However, if a dairy farmer wishes to keep his cows in a stanchion barn, or already has a milking parlor or pipeline system, the best chance for summer savings in labor appears to be in field work through use of hay balers, choppers, combines, etc.

In the winter an extra cow above 15 requires 1.27 man-hours weekly. Labor requirements per week are greater in winter for a variety of reasons. A higher percentage of cows are milked during the winter period, for example. Manure disposal is more time-consuming. Also, both baled hay and silage are fed as substitutes for pasture during the winter. Hay and silage feeding (which generally are not done in summer) account for 4.4 extra man-hours weekly in a 15-cow herd.

The best opportunity for reducing the total labor required in winter, according to the economists, seems to be with such labor-saving devices as silo unloaders, gutter cleaners, and storage of baled hay near the feeding racks.

N.D.A. bill introduced

Another "self-help" bill has been introduced into Congress. Sponsored by the National Dairymen's Association and introduced by Representative Alvin O'Konski (R-Wis), the bill has been numbered HR-12053.

Under the N.D.A. bill, the price of farm commodities would be supported through purchase of surpluses in the open market to maintain a constructed cost of production price at the farm level.

When one-half of the producers of a commodity are members of a commodity stabilization association, or when the members represent more than one-half of the production of the commodity, the Secretary of Agriculture will charter the association to operate nationally in the stabilization of the prices of the commodity involved.

In the case of milk, which is specifically considered in HR-12053, the proposed program would become effective October 1, 1958, after more than two-thirds of dairy producers have voted in favor of a national federal order on manufacturer's milk.

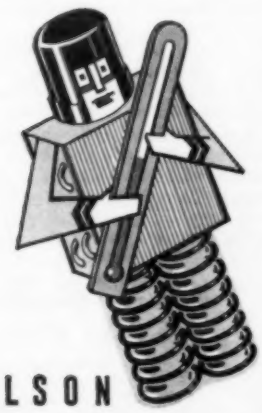
The support level is not definitely specified in the bill, but the means for determining it are outlined. Industrial labor costs are to be used in determining farm labor costs, and it is specifically provided that, in determining production of milk, the board shall not use a rate of production higher than the national dairy herd improvement association average.

For purposes of administration of the program a Commodity Stabilization Commission is established as an independent agency in the executive branch of the government. It shall be a referee composed of five members appointed by the President, by and with the advice and consent of the Senate.

Any action of the board of directors of the dairy stabilization association, for example, must be submitted to the President-appointed Commodity Stabilization Commission. At any hearing by the commission, which involves an increase in price supports, the bill provides "the burden of proof to show that the higher price support is not unlawful shall be upon the board."

The bill has been referred to the Committee on Agriculture of the House of Representatives.

milk quality goes UP



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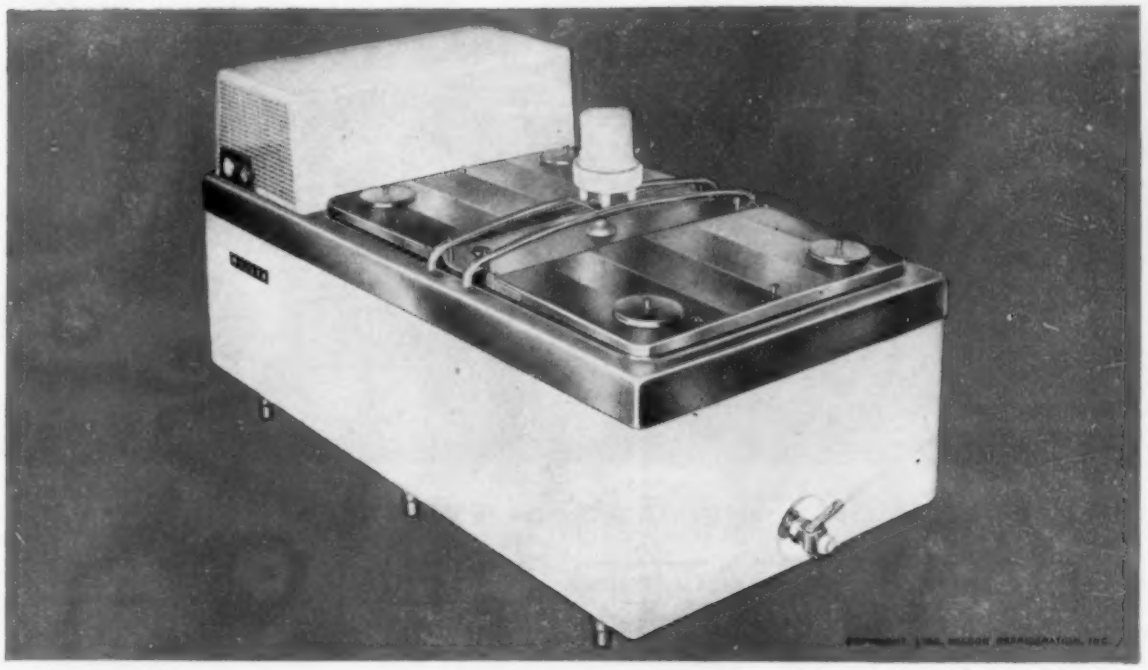

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Also print in margin the names and addresses of your favorite dealer and milk plant manager.

Green feeding is practical and profitable

(Continued from page 589)

If forced to stay on a lot to eat the more mature parts, they will drop in milk production.

The system of green feeding (zero grazing) is used to help prevent the losses due to some of these factors in grazing. Under this system the material is chopped in the field and hauled to a drylot where it is fed to the cattle.

Here the problem of dung and urine spots is eliminated. Also, preferential or selective grazing is also eliminated since the material is all chopped and mixed together.

The cows do not seem able to "selectively graze" this green chop forage. Under this system a higher level of production can be expected, if the forage being used is in the young, succulent stage. Maturity is not as serious a factor as we have found it in strip grazing.

At Marshfield the systems of intensified strip grazing and green chopping have been compared for three years. Both the strip grazing and green chopping have been done on the same field so that the type of forage and growth stage have been as much alike as possible.

Milk production per acre has averaged 5,190 pounds of 4 per cent F.C.M. on green feeding and 4,349 on strip grazing.

It has required .9 of an acre to carry 1 cow for 115 days on strip grazing and .7 of an acre per cow on green feeding.

The greatest factor making for more milk production per acre and less acreage needed to carry one cow was utilization of forage. As stated before, the average utilization of forage in the field under the strip grazing method was about 70 per cent. With the green chopping method, the utilization of forage harvested has averaged 98 per cent for the 3 years. Thus, under this system only 2 per cent of the forage harvested was not actually consumed by the cattle.

A grain mixture consisting of corn and cob meal, oats, bone meal, and salt has been fed to both groups. The green-fed group required grain feeding at the ratio of 1 pound concentrate per 9 pounds milk to maintain milk production and body weight, while the pasture group required 1 pound concentrate to 7 pounds milk.

When using the green chopping method it is necessary to have a self-feeding wagon or a bunk feeder in drylot. With dairy cattle it is imperative that they be fed in a clean drylot, preferably paved to keep conditions sanitary. Removal of manure from the drylot area must be done often and regularly.

Our experience would indicate that when green feeding, cutting twice daily is necessary to avoid heating. When we green chopped only once daily, the material heated to a point where consumption dropped, resulting in decreased milk production.

It is necessary, also, for efficient operation, to have a special machine on the farm to do the chopping. Since it is a twice-a-day operation, it would be unhandy to change heads on a chopper being used for some other operation.

We have used both a rotary and a flail-type chopper and both have harvested the forage satisfactorily. If this system is used, it means that two loads of material must be cut every day of the season.

Our experience has shown that the ground was too wet to cut green material in the field only three days out of the past three years. This is a factor to consider in a green feeding operation during a wet year. However, during the time the ground is too wet to green chop, it is also too wet to pasture when using intensified strip-grazing.

It would seem from our trials that there is much to be gained by changing from a conventional pasturing system to strip grazing.

More milk can be expected per acre and less acres are required to carry a cow for the season.

Also, green feeding seems to have some advantage over strip grazing. Green chopping can eliminate waste of forage due to dung and urine spots. It also helps in reducing waste due to selective grazing, especially of more mature forage.

Because of these factors, more milk production per acre and less acreage per cow usually can be expected from green feeding than from any of the other systems of grazing. **THE END**

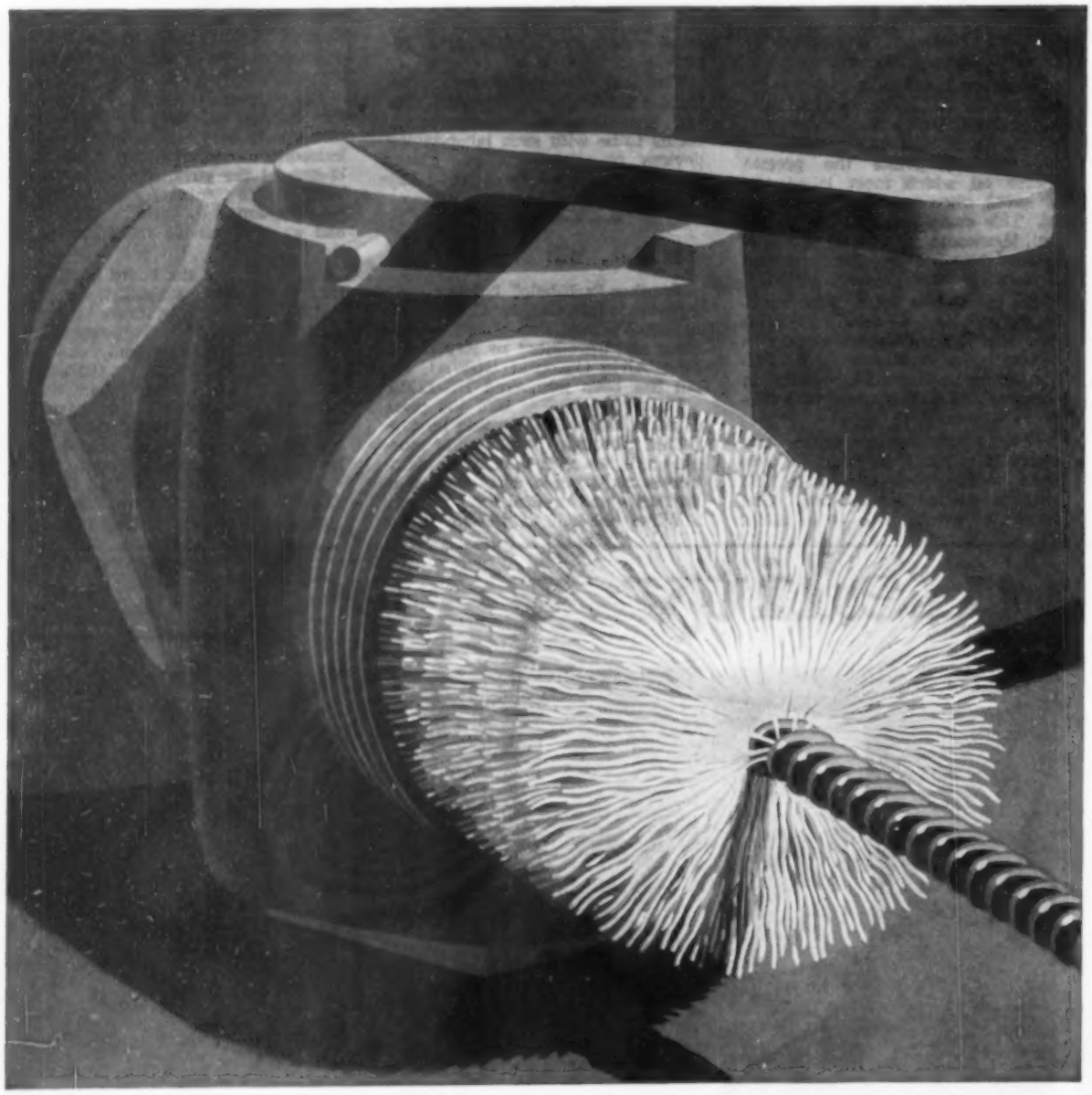
Weidman Dispersal averages $786

The George J. Weidman Dispersal, held April 28, the day before the 44th Anniversary Holstein Sale, saw buyers from 10 states purchase 59 head, and 10 calves for a total of $46,380. The sale was held at the farm, Cedarburg, Wis., and averaged $786.10.

W. L. Baird, Waukesha, was the sale manager.

Following are those animals that sold for $900 or more and the buyers' names:

Harry Pickett, Michigan	
Belle Raven Pabst Leader	$2,600
Carrie Raven Pabst Leader	1,400
Mertwis Leader King	1,125
Pabst Farms, Wisconsin	
Pride Roamer Pabst Raven	1,600
Pabst Hawthorn Leader Bee	1,100
Belle Roamer Pabst Raven	1,050
Ormsby Raven Leader Jane	1,025
York Farms, Washington	
Sally Raven Pabst	1,375
E. R. Roberts, Wisconsin	
Pride Jess Pabst Leader	1,125
Floyd Jones, Wisconsin	
Silver Raven Pabst Leader	1,020
Emil and Neal Kuhn, Indiana	
Pabst Leader Burbess	1,000
Archie Schurz, Wisconsin	
Pabst Raven Roamer Burbess	900
Donald Fritz, Wisconsin	
Margie Regal Pabst Leader	900
Eugene L. Knudtson, Iowa	
Pabst Raven Judy	900



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BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Pros and cons on bulk milk handling

Your new bulk tank will protect the quality of good milk only. Follow instructions carefully on cleaning and sanitizing equipment.

by Myron P. Dean

SOME surveys indicate there are over 80,000 bulk milk tanks in use throughout the United States at the present time. Wisconsin, which is the largest milk-producing state, now has over 11,000 bulk milk tanks in operation.

If any program is accepted at the rapid rate as has been the experience with the bulk milk handling program, it must have some disadvantages. Of course, there are also many advantages. Bulk handling is no exception.

Advantages to the farmer . . .

1. Milk quality is protected because of the fast cooling.
2. Less milk may be lost due to sticking in the cans.
3. Cans are eliminated with resulting savings in the initial and retinning costs.
4. Work is saved in handling, washing, racking, and lifting cans.
5. Time is saved and work is somewhat easier, especially if clean-in-place (C.I.P.) pipeline milking is used in conjunction with the tank.
6. It may be possible for the farmer to handle a larger volume of milk without enlarging the milk house.
7. Milk quality is determined on the farm. The farmer can also check the measurement of milk.
8. Farmers pay more attention to milk quality because of the chance of losing an entire tank of milk.

Disadvantages to farmer . . .

1. High initial cost of the bulk milk tank, especially for small producers.
2. Some changes may be needed in the milk house such as remodeling, reinforcing the cement floor, and construction of a port opening for the milk hose.
3. Farmer has the responsibility of washing and sanitizing the tank.
4. Failure to pay attention to milk quality may mean the loss of an entire tank of milk.
5. Possibility of off-flavors if the blend temperature of the milk in the bulk tank is allowed to go too high. (Blend temperature is the temperature of the milk when the fresh, warm milk is added to the previously cooled milk.)
6. There are many different makes of bulk milk tanks, creating much competition and often resulting in misinformation to farmers.
7. To hold their market, some farmers may be forced to change to bulk milk handling before they actually are ready.

Advantages to the plant . . .

1. Can equipment usually is not needed.
2. Less plant labor required.
3. Lower plant utility costs.
4. Better cooling on the farm protects milk quality and less cooling may be required in the plant.
5. Every-other-day pickup is now being accepted and used, offering further reduction in handling costs.
6. Easier work for the bulk hauler which could prevent the rapid turn-over of drivers. This would make it easier for the plant to employ a well-trained driver.

Disadvantages to the plant . . .

1. Higher qualifications and special training are required for milk haulers.
2. Truck washing facilities are needed at the plant.
3. The bulk milk hauler is responsible for fat samples, quality samples, measurement of milk, and flavor evaluation.
4. Any loss of milk between the farm and the receiving room is at the plant's expense.
5. Plant changes may be needed.
6. More work in handling milk samples usually is required.
7. A different quality test may be needed, such as the plate count instead of the methylene blue test.
8. Possible measurement of air incorporation in the milk which would mean a weight loss to the dairy plant.
9. Dairy plants may lose some large producers who purchase a bulk tank before the plants are able to accept bulk milk.

With all the advantages and disadvantages given, one realizes that many things have to be taken into consideration before a change to bulk milk handling takes place. However, one of the big selling points of bulk milk tanks to the farmer has been that of improved quality of milk because of the fast cooling.

In some cases, this matter of cooling has been stressed to such an extent that some farmers may be convinced that fast cooling is the only necessary thing in the production of high-quality milk. Yet, in many cases, farmers have experienced very high bacteria counts even with this fast cooling.

Protects only good milk . . .

This fast cooling that we obtain from bulk milk tanks can only protect the quality of good milk. Clean and sanitized milking equipment and good milking practices are essential along with fast cooling to give a high-quality milk.

Another aspect of bulk milk handling, which is often overlooked, is the importance of the bulk milk hauler. With all the added responsibilities which have been mentioned, he is a key man. Without training and the willingness to accept these added responsibilities, the farmer and the dairy plant can expect such problems as:

1. Incorrect milk measurement.
2. Improper sampling techniques.
3. Acceptance of poor-quality milk.

Therefore, the dairy plant and the dairy farmer must be sure that the bulk milk hauler is well trained to properly perform all the necessary duties.

Note: Wisconsin Extension Circular 510 gives further details on bulk milk handling. This circular can be obtained by writing Hoard's Dairyman, Editorial Office, Fort Atkinson, Wisconsin.

The author is an extension specialist in dairy and food industries, University of Wisconsin.

this summer—condition your hay with a Cunningham

and you'll feed field fresh June Pastures all next winter

protein is the heart of your hay

save it in the summer and stop buying it in the winter

You can see the difference in the field . . . pick up a handful of Cunningham conditioned hay . . . crimped stems are losing moisture immediately, curing as rapidly as undamaged, uncrushed, protein packed leaves. The swath level "sweeping action" of a Cunningham conditions your hay by crimping . . . not by crushing or squeezing. Hay is barn ready 50% to 80% faster than unconditioned hay. *You can see the difference in mid-winter feeding.* Cunningham conditioned hay is sweet smelling, palatable, rich green in color. Your protein packed hay leaves are in your manger . . . not left in the field. You save and feed 90% of the protein-carotene found in hay leaves . . . it's complete feed, without supplements. See your dealer now . . . condition your hay with a Cunningham this summer and you'll be feeding full protein June Pastures next winter.

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AMERICA'S NUMBER ONE HAY CONDITIONER

with more years of proven performance, in more areas, for more profit-minded farmers than all the other makes combined

IMPORTANT

when you buy a Conditioner be sure you get a Conditioner get crimping action—get a Cunningham

mail coupon today for complete information

Please rush me your free, full color booklet "JUNE PASTURES IN JANUARY"... giving complete information on feeding full protein hay all winter.

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EDITORIAL COMMENT

DAIRY MONTH, 1958

IT IS logical that in our daily life we should devote the greater portion of our time and efforts to the problems we face. So it has been and perhaps will continue to be in these columns. As in our personal lives, seldom do we take time to count our blessings and reflect with satisfaction on what has been accomplished in the past.

During June Dairy Month, all of the advertising and public relations forces of our industry are marshalled to convince the great consuming public of the value of the products we have to offer. This is all to the good, a highly meritorious project. Within dairying, however, it is perhaps an appropriate time to weigh our assets:

Never before in history have we attained such a high level of productivity. Per cow, per farm, and per man, we today produce more milk and cream than ever before.

The quality of the products we market has reached a new high. By every yardstick known to science and the human senses, the fluid milk and dairy products offered American consumers have reached new heights.

In terms of the consumer's hourly income, we provide the finest foods known to man at the lowest cost in history.

On the farm, we have available to us, through artificial breeding, sires capable of transmitting the highest possible amount of milk per cow. In years past these sires were available only to a few skilled breeders, or the wealthy fancier of dairy breeding stock.

In the barn and in the field we have equipment and machinery which has largely taken the drudgery out of farming as we knew it 20 and 30 years ago.

In our homes we have all the comforts and conveniences which, in the past, were limited to the wealthy.

True, we have problems. So has every generation. But as we struggle with these issues, which oftentimes seem to defy solution, we should never lose sight of the advantages we possess, the advancements we enjoy. They fortify us and strengthen us as we meet today's challenges and endeavor to build an even better future.

FOR HEALTHIER SWINE, TOO

NO OTHER group of farmers are as quality and health conscious as are dairymen. The nature of the food product we sell forces us to assure its purity and safety. Because our cows remain in our herds for several years, contagious diseases are difficult to root out, and cause heavy cumulative losses.

Down through the years, dairy farmers traditionally have taken the lead in state and national efforts to control and eradicate the more serious diseases of livestock. Too often the meat animal segments of agriculture have been indifferent, dilatory, or obstructive. In recent years, however, leaders in the swine industry have become acutely aware of the heavy losses borne by swine producers. From diseases, parasites, and injuries, they suffer an annual toll which they are no longer willing to accept as inevitable.

We are heartened and encouraged in our compaign to build the healthiest possible environment for America's livestock industry. Fine, healthy, productive herds of all types of livestock are a prerequisite to profitable livestock farming. Dairymen and swine producers have many problems in common. Where our problems are not necessarily related, we can still help each other safeguard the health of our herds through supporting expanded research and improved procedures controlling the intrastate and interstate movement of diseased livestock.

OPTIMISM RETURNS

AS MEAT and egg prices have surged to satisfying levels this spring, tensions have eased throughout those areas of the country where an animal agriculture prevails. With higher beef prices, we have seen the price of milk cows jump $40 to $50 a head over last year. In many markets the price of milk has not dropped as far as expected following the April 1 price support reduction.

Coupling the healthy increases in the price of meat animals and eggs with a generally lower price for feed grains brings highly satisfactory results to those farmers with good livestock enterprises. Obviously, it is a pleasant relief after a long price movement in the opposite direction.

How should we view this pleasant respite from the intense cost-price squeeze? In our opinion, it is a breathing period, an opportunity to decide whether we are going to get in or get out of our particular farm specialty, dairying. We know how low prices can go in our area, and we have learned through experience whether our particular farms can provide us with a good livelihood at the price levels which have existed in recent years. We believe that every dairy farmer must eventually decide whether he is going into a full dairy operation or gradually dwindle on the agricultural vine. With but few exceptions, dairymen will need high-producing cows in herds of 30 to 35 cows, or more. Only with this type of a dairy operation can the owner normally expect to produce enough milk per man to provide himself and his family with the type of a livelihood they deserve.

All this means, then, that any benefits we may be deriving from the current favorable price situation, if reinvested, should be converted into cattle, buildings, and equipment which make it possible to produce at least 200,000 pounds of milk per worker.

Many dairymen made their choice long ago. Too many others have been putting off the final decision. Now is a good time to put a sharp pencil to work. Forecast your income and your expenses. Estimate the value of your capital plant and allow yourself a reasonable rate of interest on your investment. What volume of production will you need?

In 1905, W. D. Hoard said:

The lack of understanding, that many a farmer feels most keenly today concerning the principles of agriculture, is due to the fact that way back in his boyhood where "beginnings are made" he had no chance to know intelligently what the elements of agricultural science were. He was compelled to learn farming wholly through his hands. He was not permitted to know that it is a science. It is just the same as if he was compelled to learn arithmetic by hand. Arithmetic must be worked out, and so must farming, but how blindly would a man do either, who knew nothing of the principles involved.

SOUTH AMERICAN PARALLEL

AS THIS is written, the Vice-President of the United States has just returned from a "good-will" tour through South America. The bitter demonstrations against the United States have filled our newspaper, radio and television news for days.

Of particular interest to us was a CBS network radio program broadcast May 15. A member of the hour-long panel was Senor Galo Plaza, former president of Ecuador. Internationally respected as a Latin American leader, Galo Plaza is known to Holstein breeders throughout the United States as a good friend and fellow breeder of fine dairy cattle in his native land. Representatives of all the dairy breeds honored Senor Plaza as the only man beyond the North American continent ever to be elected to honorary membership in the National Dairy Shrine.

In commenting upon the South American situation and the demonstrations against the United States, Galo Plaza pointed out that our neighbors to the south are primarily producers of raw materials, whether they be agricultural, petroleum, or mineral. Following wartime prosperity, however, the South American, dependent upon the export of these raw materials, has found that his product has traded for less and less in the way of imported manufactured products. This reduced purchasing power of South American raw materials has bred dissatisfaction and discontent, which finally culminated in the recent demonstrations.

Naturally, there was much more to Galo Plaza's commentary but this, to us, was the key point he emphasized.

We were struck with the parallel which can be drawn with the producer of raw materials in the United States. He, too, has had the same experience of finding his product commanding less and less in the form of the manufactured goods he must buy.

THE RISK IN FARM FORECASTS

IN YEARS past the well-read, well-informed farmer has been able to estimate, within a reasonable range, the market price of the products he had to sell. With the aid of government agricultural statistics, farm economists have forecast, with reasonable accuracy, price prospects for a year in advance.

Today, however, there is a growing uneasiness about forecasting the price of farm commodities which are not under government price support programs. While the influence of the milk-feed and meat animal-feed ratios still exists, the degree of the influence may not be as great as in years past.

Other management and financial considerations are having a greater bearing on cattle, hog, and dairy animal numbers. The cost of a bulk cooling tank and higher sanitary standards in dairying, and the influence of high capital requirements in the production of other commodities serve to modify the expected responses to price relationships.

The wise farmer of the immediate future will season the farm price forecasts he reads with a good deal of his personal observations of what is taking place on the farms in his area.

So many of the historical relationships which have existed in years past no longer prevail. The concentration of our farm production in fewer hands, with accompanying specialization, makes price forecasting hazardous.

Questions from Our Readers

How many tons?

Would like to have the figures on how to determine the amount of chopped hay in a mow. Also how to determine the amount of corn silage in a bunker silo. We are having a sale and want to know how much hay and silage we have.
New York **H. L.**

There is no very accurate way to make a weight determination from the volume of such materials as hay and silage. Maturity at the time of harvest, moisture content, and depth of the stored material affect the density.

A figure of 12 pounds per cubic foot is frequently taken as the weight of chopped hay. Silage is generally figured at 35 pounds per cubic foot. Actual weight can vary widely, however.

A more accurate way to get the weight per cubic foot of the stored material would be to cut a slice off the face of the pile and weigh it. If the slice is made one foot thick, the volume in cubic feet of the material removed can be obtained by measuring the width and height of the cut face in feet and multiplying by two. Divide this into the weight of the material removed to get the weight per cubic foot.

Material	Cubic feet per ton
Hay—loose in shallow mow	512
Hay—loose in deep mow	444
Hay—baled loose	133
Hay—baled tight	100
Hay—chopped, long cut	250
Hay—chopped, short cut	167
Straw—loose	512
Straw—baled	167

Wet vegetable room

Condensation forms on the ceiling of my vegetable room located off the basement. What can I do?
Wisconsin **E. C. M.**

Condensation forms because there is likely little insulation in the ceiling. When the outside temperature drops, the air in the vegetable room is cooled below the dew point with resulting moisture.

If the wall between the vegetable room and the basement is made tight, it will likely reduce your problem because it will prevent the warm basement air from entering the colder area of vegetable room.

In addition, you may find it necessary to insulate the ceiling of the vegetable room with a couple of inches of blanket or batt insulation.

May cause fire

I have a ¼-horsepower electric motor salvaged from a discarded washing machine. Can I put an old automobile fan on it and use it to ventilate my barn?
Kentucky **R. M. P.**

Chances are the motor has an open case so that air can circulate through it for purposes of cooling. Such a motor is intended for use only in a dry place.

If a fan blade is attached to the shaft and the unit installed in the wall of a dairy barn, moisture will be continually drawn through the motor. This will cause the insulation on the windings to break down and in a matter of a few months a short will likely develop. The motor will be ruined and, worse, a serious fire could be started.

Only fans powered by totally enclosed motors should be used to ventilate any livestock shelter.

Cesspool for cottage

What kind of a septic tank system would you recommend for a summer cottage at a lake?
Wisconsin **R. R.**

If you are located on light soil and use the cottage only for a relatively short period during the summer, a cesspool is satisfactory.

A cesspool can be constructed of concrete blocks and should have a tight cover. The bottom must be left open. After a period of time, depending on use, the bottom will plug. The cesspool can then be cleaned out; sulphuric acid can be added to eat up part of the sludge; or it can be converted to a septic tank by changing the inlet and outlet. In the latter case the discharge should then go into a dry well.

Locate the cesspool at least 50 feet from the well and down-slope if possible. A capacity of at least 500 gallons is recommended.

All questions were answered by D. W. Bates, extension agricultural engineer, University of Minnesota.

ED . . . **and EMMA**

"Now, Em, you're too pretty to be wearing anything like that!"

"Fine, I'll buy a new one. This is my old hat!"

Why spray every day?
SPRAY LESS and PAY LESS

with long residual
DIAZINON
One spraying kills flies for 4-8 weeks

YES, SPRAY LESS FOR EFFECTIVE FLY CONTROL, because one spraying of Diazinon on dairy barn walls and ceilings *kills* flies, and *keeps on killing,* for 4-8 weeks.

PAY LESS FOR EFFECTIVE FLY CONTROL because usually two sprayings of Diazinon will solve your fly control problem all season. This means less time, less labor, and less inconvenience.

So, this year kill flies the easy, modern way with Diazinon. Remember, one spraying of Diazinon retains its fly killing power 4-8 weeks. That means real economy and convenience. Call your farm supply dealer and ask for *long residual* Diazinon today.

200 years Geigy ORIGINATORS OF Geigy DDT INSECTICIDES

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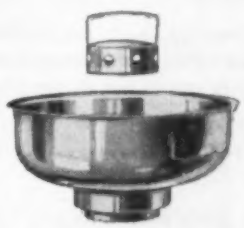
Division of Geigy Chemical Corporation • Saw Mill River Road, Ardsley, N. Y.

NEW! Vollrath HOODED DAIRY PAIL
helps keep milk cleaner...sanitary, seamless stainless steel

Hooded top protects milk during milking, stripping and transporting. Made of heavy, highly polished stainless steel with seamless body. Extra heavy chime on bottom. Tilting handle. Meets the most rigid sanitary requirements. 5842-2—13 quart.

TAPERED DAIRY PAILS with tilting handle for easy pouring. Made of extra heavy, highly polished, seamless stainless steel. 5813-1—13 quart 5816-1—16 quart 5820-1—20 quart



BULK TANK MILK STRAINER Seamless stainless steel. Maximum straining area. Easy to assemble and clean. Fits standard milk can neck. Uses 6½" filter disc. 9216—18 quart

First in STAINLESS STEEL UTENSILS for the Dairy Industry
THE VOLLRATH COMPANY • SHEBOYGAN, WISCONSIN

HAULING CHOPPED HAY with an automatic unloading truck speeds up work and the portable elevator eliminates having a unit at each barn.

Speeds up haymaking

A truck with mounted box and a portable elevator cut haymaking time 20 per cent on this large dairy ranch in California.

by F. Leland Elam

HAYMAKING on the E. B. Wood dairy ranch in California has been mechanized to speed up the handling processes to cut labor costs.

The two units accomplishing this for the dairyman are a chopped-hay-hauling and automatic-unloading box mounted on a truck and an electric power lift for placing the hay in storage barns.

Wood reports that the hay in the field is picked up from the windrow by a chopper pulled by the truck. The chopped hay is blown into the box. He points out that he can cover the hay field faster with the truck than he could if he had to draw a chopper and hay van with a tractor.

The truck is quite fast in transporting to the barns and develops considerable saving in time as his hay fields are scattered over a wide area.

Wood moves 350 tons of chopped alfalfa hay and stores it in three barns every year, using the truck which transports four tons on each load. The box on the truck is equipped with a false bed that moves forward via power from the truck and deposits the hay on a conveyor. The conveyor takes it to an opening in the side of the truck at the front.

The hay is dumped into a hopper at the lower end of belt and bar elevator which, powered by the electric motor, lifts the hay into the upper portions of the barn.

The elevator is completely constructed of steel, the bottom frame being made of 10-inch channel iron. The upper elevator holding frame is made of channel iron and pipe.

The elevator hangs in this upper frame-work by two cables, making it possible to raise or lower the elevator for use at different height barns. There are three barns in which hay is stored. A hand winch controls the cables.

The elevator belt is rubber-cord and 15 inches wide with 2 x 2 wooden bars bolted on every 24 inches. The steel sided channel in which the hay is elevated is 14 inches deep.

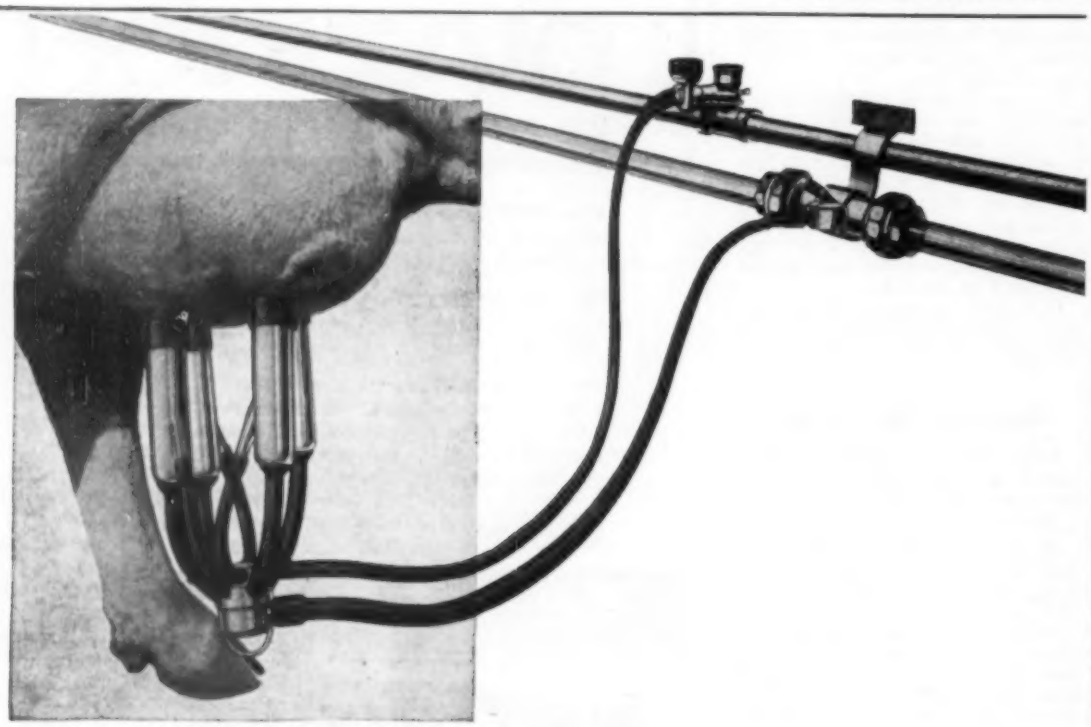
The entire unit sets on 4 rubber-tired wheels to make it easily portable, so it can be used at any barn without the trouble of assemblying an elevator or having one for each barn.

This type of a mechanical handling setup is especially good where hay fields are a long distance from the barns, or where hay land is rented miles away from the ranch.

Another advantage of the speed up in the operation is that hay is taken off the field faster and irrigation water can be placed on it quicker to start new growth.

Adults probably shouldn't eat as much as children, but adults **need all the same foods.** Practice this guide to good eating every day: Include in your meals each day two or more glasses of milk; two or more servings of green leafy and yellow vegetables; two or more helpings of fruits; an egg a day; one or more servings of meats, cheese, fish, and poultry with dried beans, peas, or peanuts occasionally; two or more helpings of whole-grain or enriched cereals and bread; and at least two tablespoons of butter.

—NATIONAL DAIRY COUNCIL



WHY DE LAVAL COMBINES MILK FAST AND CLEAN

You save expensive labor and spend much less time milking with a De Laval Combine Milker. That's because De Laval, and only De Laval, assures you an ideal, absolutely uniform pulsation rate for faster, cleaner milking every day . . . with less stripping. Your cows will "let down" sooner because De Laval "Full-Flo" teat cups take proper position automatically, regardless of teat size. And they hold that position . . . won't creep or damage udders.

You also eliminate the fatiguing, labor-wasting jobs of carrying, pouring and straining milk. The De Laval Combine Milker automatically delivers the milk through a completely enclosed system into 40-quart cans or a bulk milk cooler . . . and without spillage. Bacteria are held at a minimum and barn odors, dust and dirt are sealed out.

Fast and clean De Laval Combine Milking soon pays for itself, returns you higher profits because it lowers production costs . . . enables you to handle more cows without extra labor.

You save time by eliminating tedious hand washing with exclusive, completely mechanized De Laval vacuum cleaning. Thoroughly cleans and sanitizes . . . there's no water to carry, no tricky gadgets and no disassembly of units or any part of the milker . . . uses 90 per cent less water and two-thirds less detergent. In addition, you can be sure your De Laval Combine Milker will be custom-made, carefully planned and installed to fit whichever type of barn layout you desire. Designed for simplicity and built ruggedly for years of trouble-free operation, the De Laval Combine Milker has an unequalled record of dependability.

PLUS DEPENDABLE LOCAL SERVICE

Your De Laval Dealer is ready to give you the fast, expert service you need and the personal attention you are entitled to. He'll be glad to arrange easy credit terms. Contact him for a demonstration of the De Laval Combine Milker . . . you'll find it will milk your cows out fast and clean.

DE LAVAL BULK MILK COOLERS

Dependable, rugged construction eliminates tank distortion. Direct expansion refrigeration system lasts a lifetime, means lower electric bills. Compact design takes less room. Wide-range capacity — from 180 gallons to 1,000 gallons.

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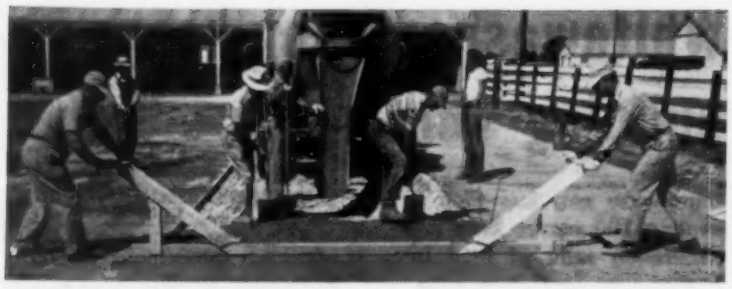


USING READY-MIX for this barnyard reduced labor requirements when compared to mixing on the site; also speeded paving operation.

How to order ready-mix

Order cubic yards needed; specify quality. Hold down the water and use enough cement.

by Kelly Parker

READY-MIX concrete is being used more and more as a building material on farms. It is available to most farms because of the large number of plants located in nearly every community throughout the United States.

Ready-mix is likely to be of superior quality to much of the concrete mixed on the farm because the materials (sand, gravel, water and cement) going into the admixture are more carefully proportioned. The aggregate is washed in ready-mix which makes a stronger, more durable concrete.

In certain areas the supply of good, clean aggregate is limited. There are many foundations that have failed and barnyard pavements that have broken up because of the poor quality, dirty aggregate used.

How much to order . . .

Ready-mix concrete is sold by the cubic yard and most plants will sell fractions of a cubic yard, such as ¼, ½, or ¾.

There are 27 cubic feet in a cubic yard. If the concrete is to be placed 12 inches thick, each cubic yard will then cover an area of 27 square feet. If the pavement is to be 6 inches thick, each cubic foot will cover twice as much area or 54 square feet.

Assume, for example, that the pavement of a cattle yard 30 by 80 feet is under consideration and that the pavement is to be 4 inches thick. How many cubic yards of ready-mix should be ordered?

The area to be paved is 2,400 square feet and each cubic yard of concrete will pave 81 square feet. Thus, by dividing the area to be paved by the area each cubic yard will pave, the total volume required, 29.6 cubic yards, is determined (2,400 divided by 81 = 29.6).

If the pavement is to be made 6 inches thick, the area to be paved, 2,400 square feet would be divided by 54 (2,400 divided by 54 = 44.4). You would need 44.4 cubic yards of concrete.

In ordering ready-mix for a foundation, its volume must first be determined. Suppose a footing and foundation are to be placed for a milk house having dimensions 14 by 18 feet. The top of the footing is to be 4 feet below grade line and the foundation is to extend 1 foot above ground with a width of 6 inches.

As a general rule the footing should be twice as wide as the wall placed upon it and have a depth equal to the thickness of the wall. The footing would then be 12 inches wide and 6 inches deep. The perimeter of the footing would be 18 + 18 + 14 + 14 feet or 64 feet. Each lineal foot of the footing contains .5 of a cubic foot (12 × 12 × 6 = 864 cubic inches or ½ of 1,728, the number of cubic inches in a cubic foot). Thus, 64 × .5 = 32 cubic feet, which divided by 27 equals 1.2 cubic yards for the footing.

The volume of the foundation wall as 64 × 5 × ½ feet = 160 cubic feet; 160 divided by 27 = 6.0 cubic yards. The total volume of concrete required would then be 1.2 plus 6.0 or 7.2 cubic yards.

Since the footing requires only 1.2 cubic yards and must be allowed to set before the forms for the foundation wall are placed, it might be practical to plan some other concrete work around the farmstead which could be done at the time the footing is placed as many suppliers of ready-mix specify a minimum delivery which may be more than 1.25 cubic yards.

Frequently in farm construction no forms are used below ground if the earth walls of the foundation trench will stand straight and true. This method requires more concrete but less form material and labor. It is difficult to dig a trench less than 12 inches wide. In the example cited, the bottom of the trench would be 5 feet below grade line. Since the wall is to extend 1 foot above grade, its total height would be 6 feet. The portion of the wall above ground would likely be made 12 inches wide so that the total volume of concrete required would be 384 cubic feet (64 × 6 × 1 = 384). Dividing 384 by 27 it can be seen that 14.25 cubic yards of concrete would be required, which is about twice the amount required if complete forms are used.

The thing to consider in comparison with the form method then, is whether the labor and form material would cost more or less than the seven extra yards of concrete.

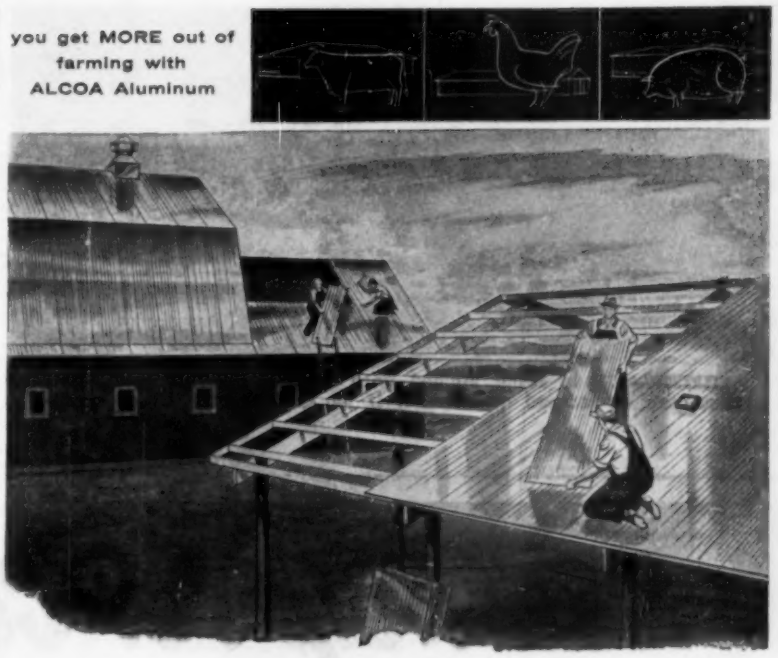
Specify a six-bag mix . . .

Mixes of various qualities are usually available. For farm construction it is important to specify a mix containing not more than six gallons of water per sack of cement and not less than six sacks of cement for cubic yard of concrete.

Aggregate size should be 1½ inch. Such concrete will have a compressive strength of approximately 3,500 pounds per square inch.

When using ready-mix, be sure adequate help is available to handle it when it is delivered. If the weather is hot, the initial set of the concrete may take place within an hour after it is placed in the forms. Therefore, the entire load of ready-mix must be placed and leveled within that time.

you get MORE out of farming with ALCOA Aluminum



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You can re-roof and re-side present buildings with long-lasting Alcoa Aluminum for far less than you'd think. *You can erect new pole-type aluminum buildings at savings close to 75%. Your Alcoa dealer has figures to prove this.*

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If your farm is ready for better buildings, write Aluminum Company of America for StePlans* of the farm buildings you want.

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Alcoa StePlans are $1.00 each. Enclosed find _____ dollars for copies of the Alcoa building plans checked.

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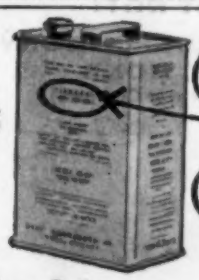
☐ Send information about Alcoa Aluminum Farm Gates.

These New Repellents

Keep Flies off Cows



MGK REPELLENT 11
(2, 3, 4, 5 bis [Δ_2 butylene] tetrahydrofurfural)

OR

MGK REPELLENT 326
(Di-n-propyl isocinchomeronate)

Fully registered for dairy spray use by the USDA

Thanks to a major scientific breakthrough, now you can keep flies *off* your cows. Repellents listed above drive away horn flies, stable flies, horse flies, gnats and mosquitoes. Flies are repelled both by the odor and by the "hot foot" they get if they land. They never get a chance to bite.

This means more money in your pocket. Leading entomologists say that just $18.00 spent for repellent sprays can bring you up to $250 worth of extra milk.

Dairy sprays with one or the other of the above repellents are available in most areas. CLIP THIS AD. MAKE SURE THE SPRAY YOU BUY CONTAINS EITHER MGK REPELLENT 11 OR 326. IT WILL PAY YOU.

MGK McLAUGHLIN GORMLEY KING Company

1715 S.E. Fifth Street, Minneapolis, Minn.
*For further information, write to the address above.

WHITEWASH is being applied with brushes to this roof. Labor costs can be reduced considerably if job is done with power sprayer.

Whitewashed roof keeps building cooler

Ingredients cost less than 5 cents a 100 square feet; the conversion ratio of feed to broiler was lowest in area.

by Leland E. Bradley

KEEPING livestock cool in summer has been a subject of considerable interest. Research has shown livestock will do better when comfortable.

Occasionally a farmer loses some birds or animals during very hot weather. While ventilation is the most effective and practical method of removing heat, a reflective roof will keep out some of the heat and in extremely hot weather may be of value. A smooth white surface is the most reflective.

A low-cost way to make a galvanized roof highly reflective is to whitewash it. The basic ingredients of whitewash are hydrated lime and water. Cement, salt, alum, skim milk, powdered milk, ammonia, or soap chips are sometimes included to improve the adherence. **Do not use salt in a whitewash used on galvanized roofing.**

In May 1956, a University of Kentucky extension agricultural engineer, an agricultural agent, and the American Zinc Institute, Inc., worked with Harvey Jeffries and applied various white coatings to his broiler house roof.

Recording thermometers in this and a neighboring house showed reduced temperatures beneath the white roof, and the birds were apparently comfortable. The conversion ratio of feed to broiler was the lowest Jeffries had ever had, and the best in the area.

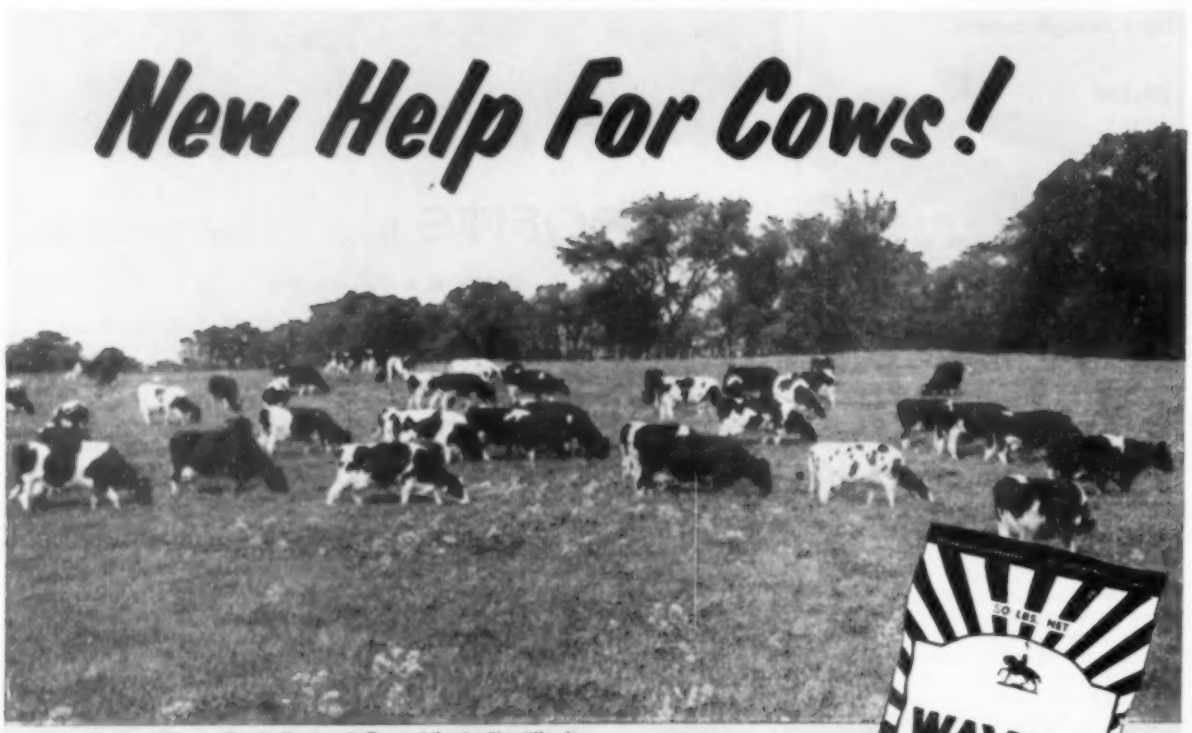
One of the whitewash formulas used was:

22 pounds hydrated lime
2.5 pounds Portland cement
1 teaspoon ultramarine blue
water

These ingredients cost less than 5 cents per 100 square feet. In the fall when the hot weather was over, the roof was still white, although the summer rainfall was above average. The following spring 50 per cent of the area still had the white coating.

Plain hydrated lime and water applied to a galvanized roof in May 1957 made it white and was adhering to 90 per cent of the area in September.

Whitewash may be brushed or sprayed on galvanized roofs. Add the hydrated lime to the water and stir. For every 5 pounds of lime use at least 4½ quarts of water. If cement, alum, formaldehyde, skim milk powder and presumably any other ingredient is used to increase adherence, additional thinning will make the mixture spray better. Strain before attempting to spray. Apply as thin a coating as you can. It may look gray when applied, but will dry white. A power sprayer will reduce labor requirements.



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When Fed as directed, Wayne Bio-Ruminutra helps:

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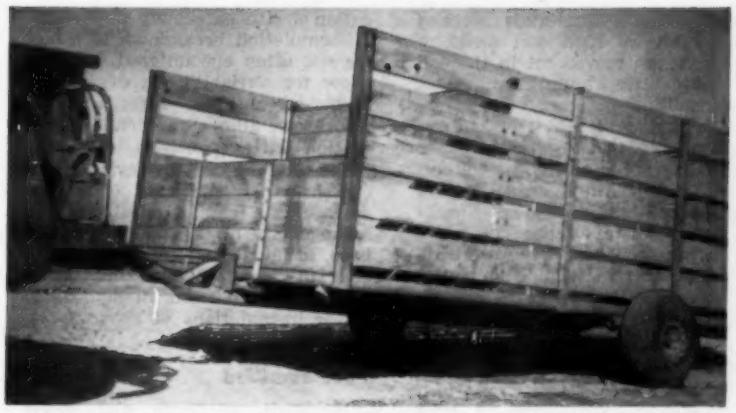
"He said he'd never propose marriage until he knew what acreage was in it for him."



LOW HOG CART is 5 feet, 6 inches wide and 10 feet, 2 inches long. Tires are 6:00x6—4 ply, scooter type. Three sows can be held in the back compartment and little pigs in front compartment.

Homemade hog cart

by Willis Holsten

THIS hog cart is designed to save labor and help in our hog health and sanitation program. It eliminates the need of a loading chute and large truck to move pigs and sows from their farrowing pens to either the holding pen operation or to the pasture pens.

The frame of the cart is made of 2-inch iron pipe welded together. Use of pipe usually reduces cost of construction material. However, angle iron can be used, if available. The tires are 6:00x6—4 ply, scooter type. Wheels, hubs, and axles normally can be obtained at almost any wheel and bearing supply store.

The framework of the sides and ends is made of ⅛- by 1- by 1-inch angle iron. Three extra pieces are used on each side to reinforce the body of the cart. The sides are made of 1- by 6-inch cypress boards and are all bolted with two, ¼-inch carriage bolts at both ends and to the 3-side reinforcement angles. The floor of the cart is loose and is made of 2- by 12-inch planks. They can be removed and cleaned easily each time after using.

The tailgate or ramp is divided into two solid floor gates. Either one or both of the gates can be lowered at one time. The solid floor is made of 1- by 6-inch cypress lumber. It is bolted onto two ⅛- by 1- by 2-inch pieces of angle iron at the ends of the boards. The bottom end of the angle iron sticks over approximately 2 inches to allow for the hinge action of the tailgate. It forms a part of the hinge.

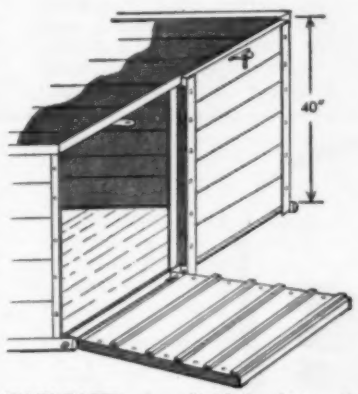
The hinge pin is made up of a ⅜-inch piece of rod iron run through the tailgate angle iron edge and the three pipes of the main frame. The gates fit between these three pipes.

The gate lock is made of a piece of ¼- by 2- by 6-inch piece of flat iron with a ½-inch hole drilled toward the end. It is welded to the angle iron at the top part of the frame and sticks out through the endgate when it is closed. A hole of the same size as through the iron must be cut in the wooden tailgate. To lock the gate, merely insert the bolt when the gate is closed.

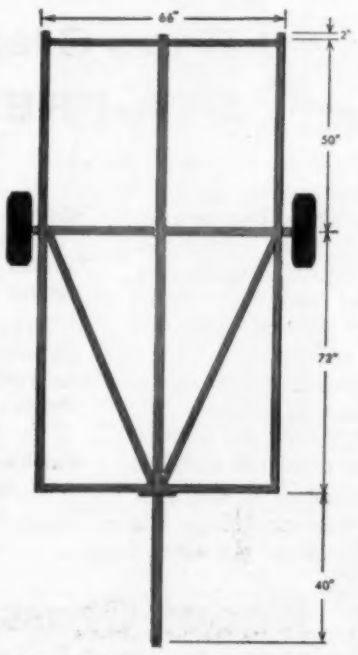
The hitch is made in an offset manner to help in keeping the cart low to the ground. The angle can be varied depending upon the drawbar height of the truck or tractor that will be used in towing the cart.

The front panel is made in two sections, each 20 inches high. The top section is removed when moving baby pigs. It is easy to lift them over the bottom part of the 20-inch panel. (There is little chance of dropping and hurting the little pigs.) The top section can be put in when using the entire cart to move pigs, sows, or boar.

The panel dividing the little pigs and sows is solid and can be removed. It also is made of 1- by 6-inch cypress boards. It is held in place with cleats and a ⅜-inch rod runs across the top, drawing in the sides of the cart. This holds it down so sows cannot lift or root it up.



TAILGATE is divided into 2 solid ramp gates. Either one or both can be lowered at one time.



TOP VIEW of hog cart showing how 2-inch iron pipe is welded together to form cart frame.

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Simplest fly control known. Just sprinkle DIPTEREX and watch flies feed and die!

You'll hardly believe your eyes when you see how fast flies feed and drop dead after you use DIPTEREX Sugar Bait Fly Killer. No other fly control is so sure . . . so easy to use . . . so *economical!*

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LOOK AT THESE TEST* RESULTS!

Product	Average Number Flies Killed Per 24 Hours
DIPTEREX	329
Popular Bait Killer "A"	180
Popular Bait Killer "B"	140
Popular Bait Killer "C"	56

*Tests conducted by a large Midwestern College

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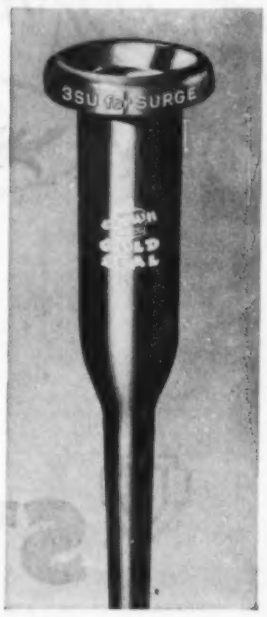

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Why weed spraying may fail

Heavy rainfalls, hot weather, faulty application, and chemical breakdown may cause failure.

by Earl C. Spurrier

MANY times farmers or custom spray operators are disappointed with the results of a weed spray treatment. Sometimes they themselves are at fault; other times many circumstances beyond their control may cause herbicide failures.

Weather conditions (temperature and rainfall), if adverse at the time of a herbicide application, can completely destroy the effectiveness of a treatment. Heavy rainfall following an application of a very water soluble pre-emergence chemical applied to an already water-saturated soil can so completely dilute and disperse it from the area of treatment that little, if any, remains to do the job. It can be almost completely removed in the drainage water.

Heavy rainfall also can cause downward leaching of a similar type material into a soil to a degree that the heaviest concentration will be well below the active germinating zone of many shallow-rooted weed seedlings. Under these conditions the chemical never becomes available in strong enough concentration to permanently destroy weed seedling being treated.

This downward leaching of more toxic materials can place them directly in contact with a germinating crop seedling. This results in crop plant stunting or stand reduction.

Rainfall occurring very shortly after a post-emergence treatment with water-mixable powder formulations can very definitely affect the degree of penetration and absorption into the treated plants. It has been observed that, for maximum penetration and effectiveness, amine 2,4-D requires contact with the plant area for at least 8 hours.

Full effects from ester formulations of 2,4-D are apparent from 20 minutes to 2 hours after plant contact. Thus, heavy rainfall immediately following an amine 2,4-D application would be critical. Rainfall could affect an application of the water-mixable powders in a somewhat similar fashion, as amine 2,4-D.

Too little rainfall . . .

On the other hand, too little rainfall following treatment with a pre-emergence herbicide may have an equally serious consequence. These materials depend on rainfall or high soil moisture for maximum movement in the soil and thus little rainfall can affect poor results.

High soil and air temperatures help to speed up reactions in the plant that are directly or indirectly associated with toxic activity of an absorbed herbicide. The warmer the temperature at time of application, or soon after, the more direct and complete will be mode of action of the herbicide.

On the other hand, cool weather can reduce the degree of herbicidal action and can allow for an increase in the residual activity of certain compounds that, in turn, can be toxic to crop plants growing in a treated area. Climatic conditions can be important factors in the success or failure of herbicidal treatments.

Maturity of plant . . .

The stage of plant growth at time of treatment can greatly influence the degree of herbicidal control. Generally, annual grasses and broadleaf weeds are most susceptible to herbicidal reactions at a relatively young stage while they are growing rapidly before heading or blooming.

Perennial plants, on the other hand, are generally affected most at a later stage of maturity, or just prior to blooming.

Faulty application . . .

Wind drift of spray materials because of too high spray pressures, insufficient coverage by using inappropriate nozzles, and poorly-maintained equipment often turn what could have been a very effective treatment into a failure further complicated with additional crop damage. Timing of the application is also extremely important.

Formulation breakdown is a factor not often encountered, but can allow for variability in degrees of herbicidal activity. Inferior emulsifiers can allow for chemical separation during storage.

Freezing of certain formulations can intensify the rate of breakdown. This rapidly destroys the homogeneity of a product. Alcohol base formulations are less susceptible to damage by freezing, but it is advisable to store all liquid herbicide formulations at above freezing temperatures.

Poor seedbed . . .

Seedbeds, if rough and poorly prepared at the time of application of a pre-emergence herbicide, can greatly alter the degree of weed control. These herbicides work best on a finely-prepared soil or on a soil with good tilth and texture that pulverizes quickly with minimum weathering and rainfall. Too often weeds germinate and emerge from under soil clods (areas that have not been exposed to the chemical). At least the areas to be treated should be given extra consideration.

There are many other factors including plant species, soil type, sunlight, and pH conditions within the plant that can directly or indirectly affect herbicidal activity. The field of weed control and herbicide application is complicated. A much better understanding of the complexities involved is needed if herbicide applications are to be used to maximum advantage.

The author is assistant professor of crops extension, University of Illinois.

Mr. Newlywed: "Aren't those eggs done yet?"

Mrs. Newlywed: "No dear. I've boiled them for two hours and they're not soft yet."

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Keep BEDSTRAW under control

Reproducing by seed and rootstock, it starts growing early in spring and can easily smother alfalfa and trefoil.

by Marvin M. Schreiber

IF YOU have traveled the highways and byways of New York and other northeastern states, you may have noticed a white-flowered weed growing along the roadsides, and in meadows and pastures. In all probability, it was bedstraw. The sight has become all too common within the last few years.

Not too many years ago bedstraw in the Northeast was just another weed. It was listed in all states of the area as being present but of little significance, an occasional plant here or there. Now it is one of our serious weed problems and threatens to become worse.

In a recent survey conducted to determine the extent of this species of bedstraw in the United States, it is interesting to note that 24 out of the 48 states listed bedstraw as definitely present but of little or no consequence.

Fail to recognize weed . . .

Probably the most important factor in its spread has been the failure of farmers and others to recognize the plant. In the past few years, it has been recognized as a problem only with birdsfoot trefoil. This is unfortunate because it has been found in increasing levels, not only along the roadsides, but in fields of alfalfa where it apparently can hold its own.

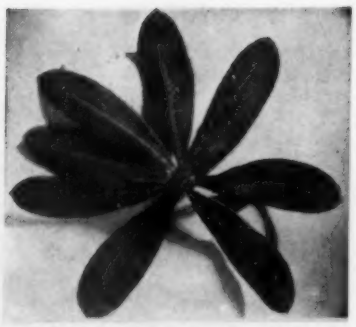
Bedstraw is easily recognized, especially in early spring, if a few important characteristics are known. In the spring, bedstraw will be in the form of a dense mat. Being a perennial plant, the size of clumps usually is related to age, some varying from as little as two inches to as much as a foot in diameter.

It is one of the earliest plants starting growth in the spring, starting as much as two weeks before some birdsfoot trefoil varieties. Early spring examination of fields usually is the best time to assess the extent of a bedstraw problem since the clumps of bedstraw are then easily spotted.

Has square stems . . .

In early growth the stems arising from the mat are square, hairless, and erect. When the stems become branched, as the season progresses, they reach a height of approximately 10 inches. At this time the stems are too weak to support themselves and they lodge to form a dense mat. This characteristic of the bedstraw plant causes serious smothering of adjacent plants.

Stem growth, however, continues to flowering time with some plants obtaining a total extended height of three feet. Lodging of the long flowering stems appears to be one way in which the bedstraw plants can spread by seeds in a field.



LEAF WHORL on main stem has eight leaves which are several times longer than they are wide.

FLOWERS have four white petals; are very small. Weed blooms more than once during a season.

The leaves of bedstraw are smooth, usually several times longer than wide, and arranged in whorls along the stem. Usually eight leaves are present in the whorl on the main stem and a lesser number, averaging five or six, in the whorl on the branches.

Bedstraw flowers are extremely small with four white petals. They appear in the axils of the whorls and at the ends of the stem. The bedstraw plant may flower more than once during the season. Usually first flowering occurs around the middle of June and, if cut, it will flower a second time in August.

Reddish-orange roots . . .

The roots of bedstraw are fibrous near the surface with thicker roots extending to greater depths. An important identification feature of the bedstraw root is the reddish-orange coloration of the roots.

Bedstraw seeds are dark brown, kidney shaped; have a rough, wrinkled surface; and are about the size of birdsfoot trefoil seeds. Thousands of seeds can be produced by an individual plant in one season.

Chemical control promising . . .

To date, only one group of materials looks promising; propionic acids of 2,4-D and 2,4,5-T. The spot treatment use of these materials has looked extremely encouraging but more testing is needed.

Since this perennial bedstraw plant can reproduce by seeds and rootstocks, an effective control or eradication procedure must combat both methods of reproduction. If the weed is sparsely present, removal by hand digging is a sure way of destroying the plant. Caution must be taken to remove as much of the root as possible because pieces of root may sprout.

In badly infested fields the only feasible method to date is plowing and planting a clean-cultivated crop before reseeding a sod crop. This will destroy the existing plant.

Only cultural methods and the use of all weed preventive methods can be safely recommended at this time.

The author is a research agronomist in the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, and assistant professor in agronomy, Cornell University.

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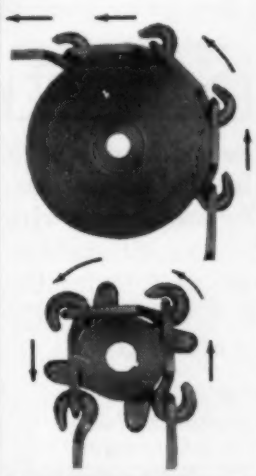

MOST FARMERS WITH ANY EXPERIENCE AT ALL WITH BARN CLEANERS WILL AGREE THAT "THE STRONGEST" BARN CLEANER LINK IS NOT AT ALL NECESSARY—IF, IT IS ENGINEERED CORRECTLY!

That's why the Patz Company, the originator of the Pitless Barn Cleaner, designed a special barn cleaner chain and link years ago. These original barn cleaner chains are still cleaning barns today.

LOOK CLOSELY AT A PATZ LINK. Pay particular attention to the way it turns the corners and passes over the drive sprocket.

Where there is a joint of the links — there is also a bearing of the links — on the wheel. The Patz Link is actually "resting," at the point of greatest stress! The drive sprocket actually pushes — each link on its way to eliminate bending under excess loads, and jamming or stretching of rivets, pins, or links.

Test the flexibility of the Patz Link under load — as its smooth, rolling action makes 90 degree right or left hand turns, 45 degree elevations — completely without — the sliding, wearing action of ordinary barn cleaner chains.

Each Patz Link weighs over 2 lbs., measures 2¾ x 7½" and is protected by patent number 2,712,760.

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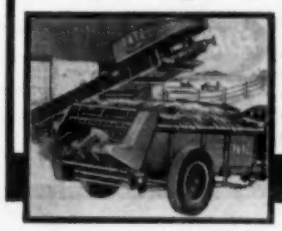
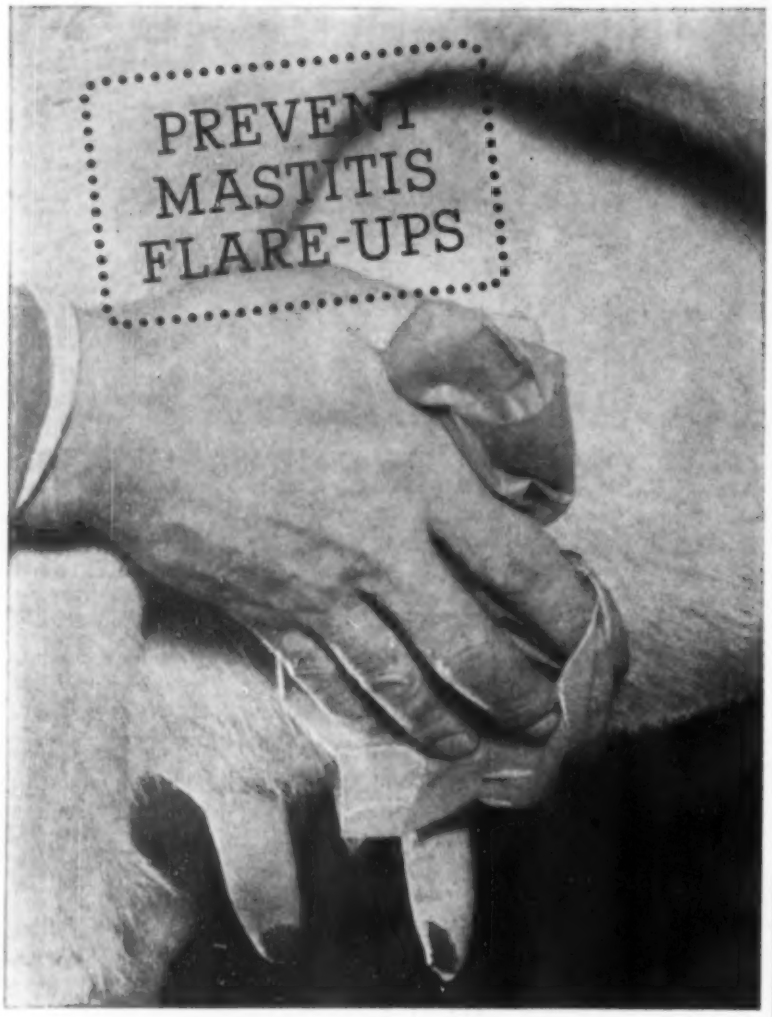


The PATZ Co., Pound, Wisconsin



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Nolvasan quickly kills most mastitis-causing organisms. This powerful new sanitizing solution swiftly blocks off bacteria before they have a chance to invade the udder.

Use Nolvasan daily as an udder wash before milking and for dipping the teat ends after milking. Nonirritant to the skin, will not cause chapping, odorless. Use also for sanitizing teat cups and equipment. Nolvasan retains its bacteria-destroying action even in the presence of traces of milk and other organic matter. Won't damage equipment.

Treat infection with Soxipent

Contains cobalt to make its 2 antibiotics and 2 sulfas work harder and faster. Soxipent is so effective that no organism usually associated with mastitis can withstand it. Can be used in healthy quarters to prevent the spread of infection.

It always pays to **consult your veterinarian** *he knows best —what's best*

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TANDEM TRACTOR has 13-foot turning radius. Under load, weight on all four tires is the same. This unit will pull a six-bottom plow.

Hitch up two tractors

With this setup, plowing time is cut in half; tests show less fuel needed.

by Mary J. and Wesley F. Buchele

AS FARMS grow larger and the cost of labor increases, the dairy farmer who grows his own feed must look for ways to do his plowing and disking faster and cheaper.

Buying a bigger tractor is one solution; in 1955, farmers bought tractors twice as large as in 1951. But, a larger tractor means a new set of big equipment, unless you operate at part load when planting and cultivating.

Rather than investing in a big tractor, a better solution may be hitching two tractors together just as our grandfathers hitched two teams of horses together to plow or to pull big loads.

Farmers have tried fastening tractors together for years, either with a chain or by setting the front end of the back tractor on the drawbar of the front tractor.

The first arrangement required two operators and the rear tractor often smashed into the back of the front tractor. The second arrangement wasn't safe because the driver rode the front tractor and operated two sets of controls at once. And, if he missed a strip, he could not see it until he had gone on around.

Costs less . . .

Agricultural engineers thought hooking two tractors together was a good idea for getting additional power at low cost and still have small tractors for light jobs around the farm. However, for tandem tractors to be practical, they would have to hitch together and come apart easily and quickly. They also must drive like a single tractor with one set of controls on the rear tractor.

The dairy farmer often has to combine field operations because he has less time for field work than the grain farmer. By using tandem tractors, he can cut plowing time in half. He can take the tractors apart and use them separately when he is planting or cultivating.

How practical are tandem tractors? Do they have a place on the dairy farm? To find the answers, two tandem tractors were built and put into use, one at Iowa State College and one at Michigan State University, where they were tested in the field.

Two 40-horsepower tractors were hitched together. They could be driven from the seat of the rear tractor and trailing implements could be seen.

For the hook-up, the front wheels were unbolted from both tractors, taken off, and laid aside. A special king pin and tongue kit were used to connect the tractors together and provide a pivot and swivel joint between them for easier turning. Hydraulic steering cylinders between the two tractors turned the entire front tractor about a fifth wheel, attached under the motor of the rear tractor.

Four-wheel drive . . .

By hooking the tractors together, we gained a simple, inexpensive four-wheel drive. The power normally needed to roll the regular front wheel was used for drawbar work. The controls of the front tractor were connected to the corresponding controls of the back tractor using hydraulic cylinders.

When the rear clutch pedal was pressed, the front clutch pedal also went down. The speed of the tractor motors was matched by using a double-acting air cylinder hooked into the intake manifolds of both tractors. When the throttle on the rear tractor was opened, the air cylinder opened the throttle on the front tractor the same amount.

Working in the field, we found the tandem tractor could easily pull a six-bottom moldboard plow (made by attaching three more bottoms to a regular three-bottom plow), or a field cultivator, or a large tandem disk.

Used less fuel . . .

Drawbar tests showed that the tandem tractor, weighing just twice as much as a single tractor, could pull three times as much. In field operations when the tandem tractor was pulling as much as two single tractors, it pulled the load faster and used less fuel.

This sounds fantastic but there is an explanation for it.

1. The tires slipped less on the

The authors are husband and wife. Dr. Buchele is on the agricultural engineering staff at Michigan State University.

tandem tractor, cut from 20 to 8 per cent.

2. With the front wheels removed, the force usually required to push each set of front wheels, varying from 300 to 500 pounds, was gained in drawbar pull. Therefore, the tandem tractor had 600 to 1,000 pounds more force available to pull larger equipment or to pull smaller equipment in higher gear.

However, farmers using tandem tractors should be careful not to overload the tractor just because it will pull. Modern two-wheel-drive tractors are designed so the wheels slip when the load is too heavy, acting like a slip clutch. The four-wheel drive ties the tractor to the ground so the wheels don't slip.

The over-all efficiency of the tractor is improved by less slip but the high stress from overloading may cause high repair bills, if it's consistently overloaded.

Tests at Michigan State University show the overhanging motor does not overstress the final drive housings of the front tractor. Two horizontal braces under the motor of the rear tractor provided a direct drawbar link between the front tractor and plow. The braces reduced the stress in the rear axle housing when raising the six-bottom plow.

Several of the larger machinery companies furnished tractors to agricultural engineering departments in Michigan, Iowa, and New York for tandemizing experiments. One company tested two of the tandems at their own laboratory.

Additional tests, refinement, and improvement of controls will be necessary before the machinery companies can evaluate the practical possibilities of manufacturing such an arrangement.

We can foresee the day when the tractors will be purchased with built-in tandemizing kits. These tractors could be hitched up by running them together like cars in a freight train. Implements could then easily be hooked together to form load for tandem tractors.

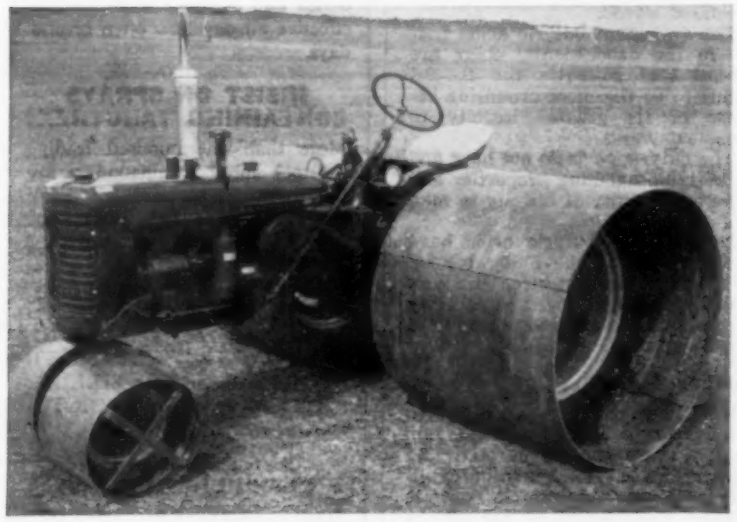
The cost of the tandemizing kit will be between $400 and $1,400 depending on such factors as:

1. Are tractors equipped with hydraulic systems?
2. Does rear tractor have power steering?
3. How strong is the frame of the rear tractor?
4. Does tractor have strong cultivator attaching pads?

In the meantime, ingenious farmers with machine shops are thinking about making tandem tractors. A large canning factory has five tandem tractors in the field now and several Michigan farmers are building tandem tractors.

If you are interested in more information on this subject, write to the Agricultural Engineering Department, Michigan State University, East Lansing, Michigan. A set of plans for a tandem tractor are available for $2.

Be sure to give adequate paint protection to galvanized screens to make them last as long as possible. Copper screening should also be painted to prevent the corrosive down-wash of the metal from staining light surfaces below. To facilitate the job of applying screen enamel, there are special applicators available that resemble blackboard erasers. Pour a little screen enamel into a shallow pan; dip in your "eraser" and you can complete the job in short order. Paint both sides of the screening, of course. When you tackle a screened porch, it simplifies matters if there are two on the painting team—one to work inside; the other, out.



Tractor roller works

by Donald H. Clapper

FIELDS that have been rolled permit faster and more efficient use of machinery with less wear and breakage. Ruts caused by other machines are smoothed out with the roller.

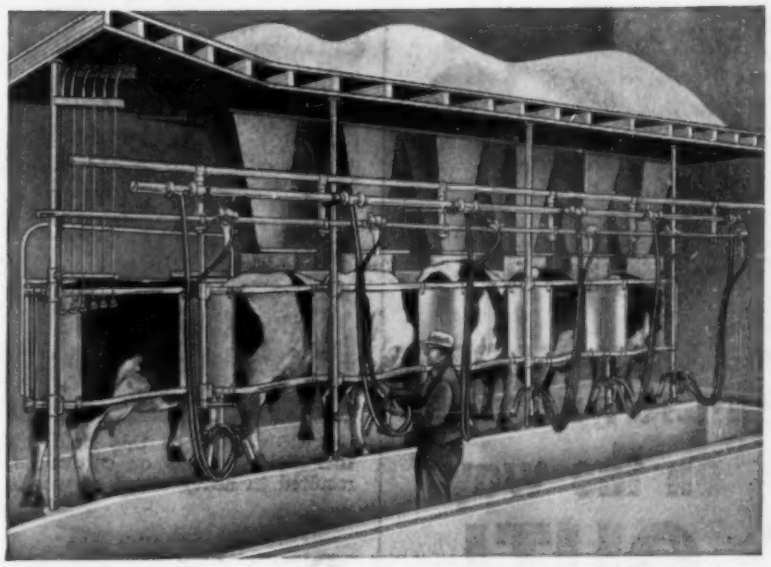
The roller was used on temporary and permanent pastures to keep them in better condition. This saves mowing time. It was also used to roll winter wheat in the early spring.

Most of the rolling is done in early spring while the ground is still cool. This prevents crusting where the sod is thin.

One of our rollers has rolled about 2,000 acres, part of which has been custom work on all types of ground.

The main advantage of the tractor roller over a trailer roller is the absence of wheel tracks. The weight is distributed evenly on each roller, making better contact with the ground than one solid roller of the same width. The roller has a total width of 11 feet. It will roll 5 to 6 acres per hour. It has no moving parts or bearings to lubricate or wear out.

The roller has been used to roll plowed ground, also to pull a disk or harrow in preparing a seedbed.



Cut-away picture shows half of 12-stall Herringbone Parlor. Udders are about 3 ft. apart. Cables release an accurately measured portion of feed for each cow.

Facts on the new Herringbone Stalls

How to pick the right milking parlor for your herd

You'll probably install a modern parlor within the next few years.

This means you must decide *which* type is best suited for your particular operation. Here are some facts which will help you make the right decision.

There are 3 basic types of milking parlor stalls which permit fast, efficient, no-stoop milking.

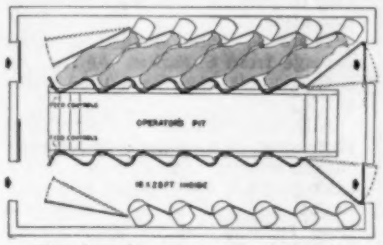
First to be developed was the Gate-type stall. Next the tandem Walk-thru stall and now, the Herringbone system which has stirred so much excitement since its introduction from New Zealand last year.

The "cow-a-minute" Herringbone . . .

A skilled, fast operator will milk *and feed* 60 cows an hour in a 12-stall Herringbone parlor, but 55 an hour is a better rate for the average man.

Two features make this possible. First, with the usual 12-stall Herringbone parlor, 6 cows enter and leave at a time. This doesn't take much longer than the time needed for 2 cows to enter and leave a Walk-thru stall. Cows move better in groups, require less driving, and there's far less opening and closing of doors and gates than with other type parlors.

Also, the diagonal Herringbone system allows 12 cows to be closely packed along the sides of the operator's 19 ft. pit . . . bovines on the bias. This is possible because the neck of one fits naturally against the belly of the next. (See diagram above.) Not only does this close packing save the operator many steps, but cows like the close fitting . . . each stall takes only ⅓ as much floor space as a Gate-stall and only ⅔ as much as a tandem Walk-thru stall . . . and cost per stall is substantially less.



Plan shows how cows are packed. Side by side, cows are quiet in Herringbone.

Advantages of Gate-type Stalls . . .

Gate-type stalls are ideal for letting you give personal attention to individual cows . . . for example, high producers or slow milkers . . . because only one enters at a time. They also offer a good opportunity to show a fine animal. Thus, they are a good choice for the farmer with top producers or who sells breeding stock.

However, Gate-type parlors cost more per stall since they require heavy gates in the rear and almost 100 sq. ft. of floor per stall.

Walk-thru Stalls for most herds . . .

Walk-thru parlors let 2 or 3 cows enter at a time and cost less than Gate-type stalls. This is mainly because they need no rear gates or rear alley and the building can be much smaller. In general, Walk-thru parlors are the best and most economical choice for most farmers with medium size herds.

To summarize: Herringbones cost least per stall, but since they call for 5 or 6 stalls on each side of the pit, total investment is greater. This investment is definitely justified, however, for large herds or for the owner of a medium size herd who must save time for other jobs.

Clay Herringbone Features

1. Much heavier frame at rear. Posts to ceiling permit attachment of cross member to carry air, water, and milk line.
2. Feed is supplied from overhead through non-clogging chute. Up to 1400 lbs. of feed is available for each stall.
3. Accurate metering of feed by cables grouped at entrance end.
4. Very large, 18" x 24" feed pan and a shield prevent cows from spilling feed.
5. No floor attachments are located under feeders. This makes washing out easier. Posts have stainless steel sleeves at the point where they enter cement.
6. Galvanized finish cleans easily; needs no repainting.

With the CLAY Purchase Plan, you can build your parlor NOW!

You needn't wait. CLAY Plan requires only 20% initial investment. Enjoy and profit from your parlor as you pay for it. Ask your CLAY Dealer for more information or write to CLAY.

Free Planning Book . . .

New 16-page book has the most up-to-date material on all type milking parlors. Farm planning ideas and building tips also included. Write to CLAY . . . *today!* Ask also for plans of the type stalls you prefer.

CLAY EQUIPMENT CORPORATION
682 Olive Street • Cedar Falls, Iowa

GAUZE-FACED MILK FILTERS

on the way

OUT!

There was a time when gauze facings on a milk filter were the sign of quality . . . because they added strength, prevented washing and tearing and, some people thought, helped remove sediment. Today, gauze adds nothing but cost, because . . .

New Kendall non-gauze filters are almost twice as tough as even top-priced gauze-faced filters . . . so they won't tear or wash even if you filter extra large quantities of milk. They filter more milk and filter it faster. They are more dependable in removing sediment. And they cost up to 25% less than top-priced filters.

Small wonder thousands of milk producers, large and small, have switched to Kendall non-gauze milk filters. Test them yourself — use coupon below.

NEW DISPENSER!

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Size of filter desired_____

From whom do you buy your filters?

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NO CONTROL in this field, either by chemicals or cultivation, resulted in heavy stand of weeds.

SIMAZINE-TREATED field was sprayed after planting at two pounds per acre (pre-emergence).

Promising weed chemicals . . .

. . . may eliminate the first two cultivations, and, in some cases, may cut out cultivation altogether.

by F. W. Slife

ALTHOUGH the control of weeds is almost as old as agriculture itself, chemical weed control is a relatively new field. The introduction of 2,4-D in 1945 renewed interest in chemical weed control and several new materials have appeared on the market since then.

Simazine . . .

This is a chemical that will be applied to the soil immediately after planting corn (pre-emergence). Soybeans are sensitive to this chemical. In 1956 and 1957, as low as two pounds of active material per acre gave complete control of annual grasses and broadleaf weeds all season long.

Simazine is a white, wettable powder that is not dangerous to handle. It has a very low order of toxicity to man and animals. Since it will be rather expensive until volume production is reached, it will have to be applied as a band treatment over the row. The centers of the row will have to be cultivated.

When it becomes cheap enough to treat the entire row, it may be possible to eliminate the first two corn cultivations. On some soils it may be possible to eliminate cultivation altogether.

There is little danger of corn damage from Simazine. As high as eight pounds have been used without injury.

Although Simazine is extremely promising, it may have undesirable characteristics. Since it is a wettable powder, the solution will have to be agitated to keep Simazine from settling out. A good strong by-pass will probably accomplish this, but it may be necessary to have mechanical agitation in the spray tank.

Simazine has such a long soil residue, this could create a problem the following year where sensitive crops are to be sown in the same area. This problem has not been completely solved, but indications are that two pounds or less may not be hazardous to sensitive crops planted one year later.

For the past two seasons, Simazine has performed extremely well under a wide variety of soil conditions. It has not been evaluated under limited rainfall conditions.

Simazine is now available for general distribution because it was approved by the Federal Food and Drug Administration April 23, 1958.

Butyric acids . . .

Butyric acids could be used for weed control in small grains that are underseeded to legumes with a high degree of safety as compared to 2,4-D. Experimental work in progress indicates that it may be possible to establish legumes in the spring without a nurse crop by using butyric acids to eliminate the broadleaf weeds.

The two main butyric acids that are in the experimental stage are 2,4-DB and MCPB. The 2,4-DB seems to be the most promising because of its greater toxicity to broadleaf weeds.

The butyric acids do not have any undesirable handling properties and have a low order of toxicity to man and animals.

None of the butyric acids have been cleared by the Federal Food and Drug Administration for use. However, because of their similarity to 2,4-D, they should be available in the near future.

Randox T . . .

This new chemical is similar to Randox, now widely available for annual grass control in corn and soybean fields. Randox is limited in its usefulness because it controls grasses well, but does not always control broadleaf weeds.

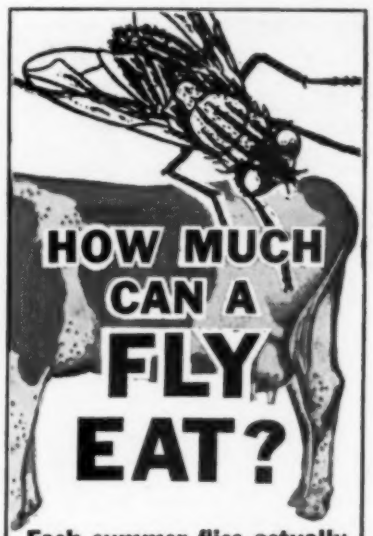
Randox T contains a new compound in addition to Randox that improves the broadleaf weed control. Unfortunately, Randox T is toxic to soybeans and will have to be limited to corn and certain horticultural crops.

Both Randox and Randox T are pre-emergence chemicals. Both are extremely irritating to the skin and eyes and must be handled with care. Although they are not very toxic to man and animals, rubber gloves and goggles should be used when handling these materials in order to avoid skin irritation.

Randox T, like Randox, has performed well when rain falls within 10 days after application, but results have been less satisfactory when rain is delayed longer.

Both compounds should be used at four pounds of active ingredient

The author is an associate professor of crop production, University of Illinois.



Each summer flies actually rob the average cow of $50.80 worth of her milk . . . but . . .

Scientists found that by using new TABUTREX FLY REPELLENT, cows were shielded from vicious biting flies in the pasture. Their tests at the University of Illinois proved that cows *without* flies rested more . . . ate more . . . and earned $50.80 more in butterfat production than cows treated with commercial sprays without TABUTREX

WHY SPRAYS WITH TABUTREX ARE MORE EFFECTIVE!

TABUTREX sets up an invisible barrier that flies refuse to penetrate. TABUTREX repels house flies, horn flies, stable flies, even the vicious horse fly, both in the barn AND IN THE PASTURE. With TABUTREX, flies don't light . . . don't bite! Cattle eat and rest peacefully and *MILK PRODUCTION GOES UP!* A single application is effective all day . . . often several days.

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More than one hundred leading livestock spray manufacturers are including TABUTREX FLY REPELLENT in their sprays. Look for the name on the label . . . TABUTREX! Don't accept substitutes! Approved dairy cattle sprays with TABUTREX are available at all leading DAIRIES, DRUG, HARDWARE and FEED STORES, from your FILLING STATION and your DOOR-TO-DOOR DEALERS.

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To get your free booklet plus complete information on Louden Milking Parlor Stalls, simply fill in the coupon below and mail it today. There's no obligation, of course.

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Gentlemen: Please send me FREE Milking Parlor Plans and complete information on Louden Milking Parlor Stalls.

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per acre as a broadcast treatment. In order to make the treatment more economical, band treatments should be used.

Randox has complete clearance for use in corn and soybean fields. Randox T has not been cleared for corn fields this year.

EPTAM . . .

This is another new pre-emergence compound that is effective against most broadleaf and grass weeds. It works much better when incorporated into the seedbed prior to planting. Rates of four pounds of active ingredient per acre have given complete control of grasses and broadleaf weeds for several months.

Soybeans are somewhat sensitive to the chemical but corn appears to be relatively tolerant. EPTAM could be the most important chemical yet found for the elimination of Johnson grass. It controls Johnson grass seedlings very well.

EPTAM has no undesirable handling properties and has a low order of toxicity to man and animals. It has not been cleared for wide-scale use.

Vapam . . .

This is a new soil fumigant that not only kills nematodes and certain soil-borne disease, but it kills weed seeds. When used at the rate of 1 quart per 100 square feet, most of the annual weed problem can be eliminated. Because of the high cost of all soil fumigants, they are not practical for use where field crops are to be grown. They do offer considerable promise for gardens, flower beds, and certain horticulture crops. Vapam has been cleared for use.

Mylone . . .

This is another new soil fumigant with properties similar to Vapam. It is used at the rate of ¾ of a pound per 100 square feet. Preliminary results indicate that Mylone and Vapam give similar results and both cost about the same. Mylone has been cleared for use.

Check for fire hazards!

Any time is housecleaning time . . . and today is a good time to check your home for fire hazards.

From the fire-safety angle, the National Board of Fire Underwriters suggest starting in the basement, where many hazards exist.

Rubbish — Old magazines and newspapers, furniture, old rags, and other things are combustibles. Get rid of them.

Furnace — It's dangerous when dirty. Have it cleaned regularly. Don't put off necessary repairs.

Living room — Your television set, if placed too close to wall, may become a fire hazard. (Never tinker with it and be careful not to cover ventilating holes that dispose of accumulated heat.)

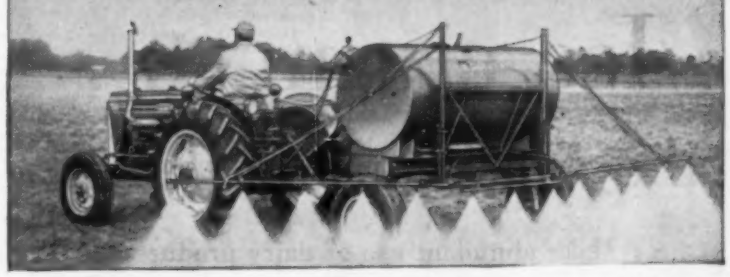
Misuse of electricity — This accounts for 15 per cent of all fires in the home. Better check all your electrical appliances, including irons, waffle irons, mixers, heaters, lamps, fans, radios, and other devices. Make sure that the cords are in good condition, that they bear the little UL tag that denotes listing by Underwriters' Laboratories, Inc.

Multiple attachment plugs are a serious danger in overloading circuits. All rooms should have an adequate number of outlets to take care of all electrical appliances.

Flexible extension cords should be in the open (none placed under rugs or over hooks) and only 15 ampere fuses for your household lighting circuits.

OLIVER

Sprayers boost crop profits



Spraying returns as much as $8 per acre *after* costs, according to research by a leading state university. Be sure you get *effective* coverage. Get the penetrating power of a low-cost Oliver to control spotted alfalfa aphid and other profit-sapping pests. Built in trailer and mounted types. High-pressure (400-pound) PTO pump, 8-way valve control, rugged boom—tailored to your exact needs.

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DAISY *Cattle Markers*

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No. 21—FOR NECK Case-hardened chain. Tag numbered both sides. $13.25 per dozen **delivered.**

No. 17—FOR HORNS. Case-hardened chain. Tag numbered both sides. $9.20 per dozen **delivered.**

No. 28—DOUBLE PLATE NECK MARKER. Combination strap webbing and heavy chain, two marker plates. $14.50 per dozen **delivered.**

Write for catalog. Sample mailed for $1.00.

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PACIFIC COAST BRUSH CO.
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- Big capacity . . . unloads one ton per minute.
- 3 Tubular Beaters and 3 speed unloading.
- Front unloading for convenient operator control and open front-end design.
- Big 16" diameter auger—simple positive action. Also removable for trench style silos.

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Ice cream . . .

the All-American dessert

Make abundant use of dairy products for your family's health and happiness now and all through the year.

by Marian Pike

JUNE is Dairy Month, and it's also a good time to check your family's eating habits to see they are getting an abundance of healthful, delicious dairy products. Since milk, butter, cheese, and ice cream are in good supply in June, they are wise buys.

Ice cream, always popular, gives you a sense of satisfaction because it is also so good for you. Choose a rich, creamy ice cream, known for its superior flavor and high-quality ingredients.

If you haven't a freezer or a freezing compartment in your refrigerator, buy ice cream as close to eating time as possible so it won't become too soft. If you have a freezer, buy ice cream in gallon or half-gallon containers for greater economy. These containers should be kept tightly closed, and once the carton has been opened and dipped into, the remaining ice cream should be used within two weeks.

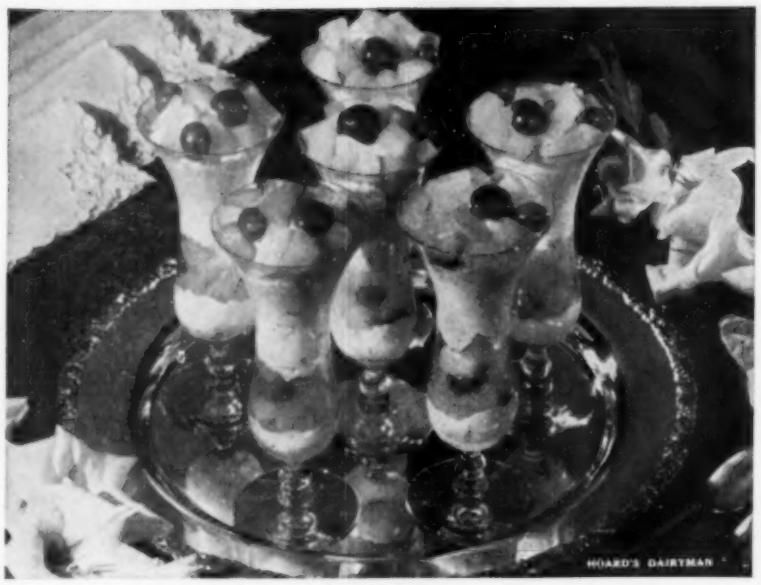
When ice cream has been softened to a serving consistency, it can't be refrozen without loss of quality and a coarsening of texture. So remove only as much ice cream from the large carton as you will need for service.

Pictured are ways of serving ice cream which should add to the family enjoyment. The fruit cocktail parfaits are pretty as a picture. Any tall slender glass will be suitable, and any fresh, frozen, or canned fruit that you like could be layered in.

The ice cream sandwiches have a wonderful chocolate crumb filling. The amount given will make about 4 servings. You can double the recipe as many times as you like and store it in the refrigerator.

During the warm summer months, a great variety of juicy sun-ripened fruits are available. One way of combining them is in the ice cream pie, simple enough to make that you can surprise the family with it.

The butter cookie cones add interest to ice cream desserts. They are a little fussy to make, but they're worth the effort if you have the time; they are a real conversation piece. Instead of rolling them around the handle of a wooden spoon to shape them, you can make cones from stiff brown paper and form cookies around them. If you have any girl scouts or 4-H girls in the house, they'll do the shaping of the cookie cones for you and enjoy it. **THE END**



Fruit cocktail parfaits

For a glamorous dessert, alternate layers of **rich vanilla ice cream** with spoonfuls of **well-chilled fruit cocktail** in tall glasses. Reserve a few **maraschino-style cherries** for a gay garnish.

Elegant ice cream sandwiches

Combine **1 cup crushed chocolate wafers, ½ cup chopped nuts,** and **¼ cup melted butter.** Make sandwiches using **slices of vanilla ice cream** and the crumb filling which may be prepared ahead and refrigerated.

Butter cookie cones

3 eggs, beaten
1 cup sugar
½ teaspoon nutmeg
1 teaspoon lemon extract
¼ cup butter, melted
1 cup sifted all-purpose flour

Add sugar to eggs gradually, beating until fluffy and light yellow. Blend in nutmeg, lemon extract, melted butter, and flour. Mix well. Pour 1 teaspoonful of batter on very well-buttered 5-inch circle on cookie sheet. Bake in moderate oven (350 degrees) until light brown. Loosen cookie from sheet with spatula and roll immediately onto handle of large wooden spoon. Remove cookie from handle and cool on wire rack. If cookies harden before rolled, return pan to oven to warm cookies.

Raspberry ice cream pie

1½ cups fine graham cracker crumbs
¼ cup granulated sugar
½ teaspoon cinnamon
⅛ teaspoon salt
¼ cup soft butter
1 quart vanilla ice cream
1 pint fresh or frozen raspberries

Blend fine cracker crumbs with sugar, cinnamon, and salt. Blend in softened butter. Line a 9-inch pie pan with mixture, pressing firmly to fit plate. Bake in a moderate oven (350 degrees) about 8 minutes; cool. Fill pie shell with layer of ice cream; top with a layer of raspberries sweetened to taste. Add another layer of ice cream. Garnish with whole raspberries. Enough for 6 servings.

From Day to Day

by Lois J. Hurley

THE month of June is important for many reasons. It is the month of brides; it is the month of graduates; it is Dairy Month and maybe some other things I don't know about.

Brides mean weddings and weddings mean parties and showers. Here are a few ideas from our state foods and home furnishings specialists that you may find helpful when entertaining for a June bride.

Give the bride a cookbook, suggests our foods specialist; a general type book that covers all types of food preparation is probably best choice and it should include information on measuring, use of utensils, cooking terms, and so forth.

Check the frontispiece of the cookbook you choose as a bride's gift to see how often it is revised and reprinted, which is a guide to how well the book has proven its worth over the years.

In the home furnishings field, a co-ordinated linen shower is suggested, including items for the bedroom and bath.

First, find out the bride-to-be's favorite color or the color she plans to use in her bedroom and bathroom. Pass the word around to the invited guests so they may choose matching or contrasting colors. Find out if the bride likes stripes and plaids.

Some gift suggestions are matching sheets, pillowcases, blankets, bedspreads, towels, bathmats, washcloths, and toilet sets. A fitted pad for double or twin beds is also an appropriate gift for a linen shower.

Two or three may want to go together on some items; a wool blanket or spread may require that a half-dozen or so chip in. Or, for a complete bed or bath ensemble in matched colors, the entire guest list might want to contribute and present the set as one big gift.

Each year I receive requests for helps with games to play or novel things to do at bridal showers. I'm sorry that I am not able to maintain a file on this subject and cannot be of very specific help. But, for what they're worth, here are some things I've done at showers that were enjoyed.

I joined with a friend a couple of years ago to give a bridal shower out-of-doors, in the cool shade of her huge maple trees. We set the table with long runners of pink crepe paper with daisies pinned along the edges for a border. We painted small sprinkling cans pink and filled them with daisies and scattered them down the long table as centerpieces.

We painted a big, old-fashioned umbrella that was dug out of the attic in the same pink as the sprinkling cans and fluted matching crepe paper around the edges. On the handle we tied a pink satin bow with daisies. We heaped the gifts in this open umbrella and carried them to the bride-to-be to open.

At another recent shower, after lunch and before the gifts were opened, the hostess passed out assignment sheets, scissors, and paste and provided a huge heap of magazines in the middle of the floor. On each assignment sheet we were to cut and paste suitable pictures, captions, and so forth, to illustrate the page headings, which were The Meeting, The Courtship, The Proposal, The Wedding, The Reception, The Honeymoon, and 50 Years Later.

At the end of a half-hour the sheets were collected, assembled, and presented to the bride as a This Is Your Life book. She read and displayed the sheets and needless to say hilarity reigned.

Milk drinks . . .

June is also Dairy Month when the grass is greenest, thickest, and most succulent and the milk flows most freely. At a Dairy Caravan I attended a couple of years ago I picked up the following list of recommended milk drinks:

Banana milk shake — Beat half a fully-ripe banana to a pulp and stir into a glass of chilled milk. Add sugar to taste and ½ teaspoon of vanilla and stir until all are thoroughly blended. Drop in a scoop of vanilla ice cream if desired.

Grape cooler — Combine half milk, half sweetened grape juice in a glass and top with a scoop of vanilla ice cream.

Pineapple cooler — Same as above, using pineapple juice.

Orange refresher — Blend 3 parts milk with 1 part concentrated orange juice and shake thoroughly. Pour into tall glass and drop in a scoop of orange sherbet.

Fruit flip — Mix chilled milk with 2 tablespoons cherry, raspberry, or strawberry preserves or sweetened, crushed, fresh berries. Blend thoroughly and drop in a scoop of raspberry sherbet or strawberry ice cream.

Mocha mixer — Combine half and half chilled milk and strong black coffee. Drop in a scoop of chocolate or vanilla ice cream and top with a dab of sweetened whipped cream.

Chocolate float — Add chocolate syrup to taste to chilled milk. Blend thoroughly, and drop in a scoop of vanilla or chocolate ice cream.

Root beer float — A scoop of vanilla ice cream dropped in a glass of ice cold root beer. Stir slightly to mix flavors.

A tasty casserole . . .

Last issue I told you about my visit to one of our big meat packing plants. Now, I'd like to share with you the recipe for the delicious dish we were served at noon in the lovely conference-dining room.

It was a bacon macaroni casserole . . . a hearty, pretty dish that your family would enjoy for lunch or supper or it would make a fine offering to take to your next potluck.

- ½ pound bacon
- 1 seven-ounce package macaroni, cooked
- ½ cup chopped onion
- ½ cup chopped green pepper
- 1 clove garlic, minced
- ½ cup bottom mushrooms
- 1 six-ounce can tomato paste
- 2 cups water
- 1½ teaspoon salt
- ⅛ teaspoon pepper
- ¼ teaspoon oregano (optional)
- ¾ cup grated cheese

Cook macaroni according to directions and drain. Fry bacon until crisp and crumble all but a few strips. Drain off fat leaving about 3 tablespoons in frying pan. Saute onion, green pepper, garlic, and mushrooms 5 minutes in bacon fat; add tomato paste, water, bacon bits, and seasonings. Mix with macaroni; stir in cheese. Turn into a buttered 2-quart casserole or baking dish and bake in moderate oven a half-hour. Garnish with the remaining bacon strips. Serves 6.

A tossed or fruit salad, a light dessert, and your favorite beverage completes this meal.

9058. Smart sundress for the larger figure with neat bolero that buttons on at neckline. Printed pattern in women's sizes 36 to 48. Size 36 dress takes 4½ yards 35-inch fabric; bolero 1⅛ yards. Price 35 cents.

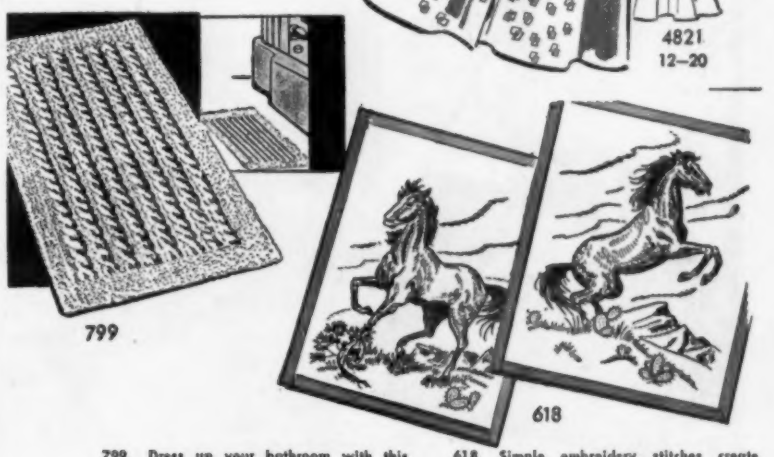
9118. Softly feminine summer dress with accent on arrow-point neckline. Choice of three sleeve versions. Printed pattern in misses' sizes 12 to 20. Size 16 takes 4 yards 35-inch fabric. Price 35 cents.

4712. Slimming blouse and skirt outfit for the shorter, fuller figure. Printed pattern in half sizes 14½ to 24½. Size 16½ blouse takes 1⅞ yards 35-inch fabric; skirt 2⅞ yards. Price 35 cents.

9308. Daughter will love the whirly skirt with jumbo pockets; the grown-up blouse in gay contrast. Printed pattern in girls' sizes 6 to 14. Size 10 skirt takes 2⅛ yards 35-inch fabric; blouse 1¼ yards. Price 35 cents.

4666. Half-sizers, sew this smart fashion now for a cool summer dress; wear it the rest of the year as a jumper with blouse. Printed pattern in sizes 12½ to 24½. Size 16½ takes 2⅞ yards 39-inch fabric. Price 35 cents.

4821. Step-in playsuit with button-front skirt to add for "dress" occasions. Printed pattern in misses' sizes 12 to 20. Size 16 playsuit takes 2 yards 35-inch fabric; skirt 3¼ yards. Price 35 cents.



799. Dress up your bathroom with this charming set. Rug and seat cover are knit in cable stitch. Directions for set. Make rug any size; use in any room. Price 25 cents.

618. Simple embroidery stitches create these unusual pictures. Use natural colors of just black or brown for "etching" effect. Transfer of two pictures 9½ x 11¾ inches. Color chart. Price 25 cents.

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POULTRY

Joe W. Sicer

Mostly for turkey growers

I. M. Optimistic and B. A. Wiseman are turkey raisers but their experiences may apply to poultrymen, also.

SUCCESS with turkeys is often the result of an accumulation of many little things done properly. To be sure, disease, the price of turkeys, and the cost of feed all play their part. But, over the years, the successful turkey grower pays less attention to the feed bill, and more attention to what he plans and how he performs his work.

For instance, there is the care of poults just after they have been moved to the range. If the poults have not been "range trained," a cold rain at this time may cause heavy loss from huddling or piling.

Consider the fictional character, I. M. Optimistic, who thought the bad weather was past. He moved his 7-week-old poults, without sufficient "hardening off," from a well-built brooder house to open perches on good alfalfa range. It was fine for three days. Then an unexpected change in the weather brought a hailstorm, a pile up of 75 dead poults, and a number of others scattered over the field.

"Advance guard" helps . . .

His neighbor, B. A. Wiseman, had moved an "advance guard" of poults to his range, even though all the poults had been gradually exposed to outside conditions while in the brooder house and on the porch. These "old-timers" acted as guides when the rest of the flock was moved out. They knew where the shelters were, and where the feed and water were found.

The flock had not yet been given the run of the entire field in which to get lost, but were still fenced in a fairly small area when the storm hit. The result? No losses.

After the storm, Mr. Optimistic thought those puddles of water left around the range were harmless. He let his poults drink out of them and, later, peck at the remaining mud. Not many of the poults became droopy but there was definitely a setback that didn't happen over at Wiseman's where the puddles had been drained and filled promptly.

Later in the summer, when the thermometer soared into the 90's, the difference between our two turkey raising characters again became quite evident.

I. M. Optimistic let the water supply stay out in the sun. The pipes were on top of the ground and the water in them was hot enough to brew tea. The turkeys preferred to stay in what little shade they had and suffer thirst rather than get out in the blazing sun and drink hot water. Naturally, their appetites sagged, feed consumption dropped, and the birds lost weight.

Shade helps feeding . . .

Wiseman, on the other hand, had a shade over every water pan. It was supported on four 2-x-4 posts that rose from the corners of the wire-covered platform on which the water pan rested. The cover was big enough to keep the water in the shade all day.

Over the water wagon there was a big portable shade covered with burlap. Wiseman decided on that one sunny day after he nearly burned his hand when he leaned against the exposed tank.

The entire turkey camp had been moved alongside a cornfield so the birds had the benefit of the shade of the growing corn. It wasn't air conditioning but the birds kept on eating and gaining in spite of the hot weather.

Poor old Mr. Optimistic slipped in other ways, too. He had some poorly constructed feeders which let too much feed be billed out.

He forgot that he had scattered some poultry manure across the end of the alfalfa field when he was in a hurry last winter. Hadn't thought then that he would use the alfalfa for turkeys anyway. He didn't move the turkey camp for three weeks during the rush of corn plowing and haying, and he overlooked that dead turkey under the perches until the other birds had the carcass nearly eaten.

Wiseman, however, not only kept a careful check on all the details where his neighbor slipped but, in addition, he studied ways of saving work on the turkey range.

Planning saves steps . . .

He arranged his shelters, feeders, and waterers in an orderly manner for convenience both in chore work and moving. The shelters formed a narrow oval. The feeders and waterers encircled them. One trip around the oval route and the feeding was done. The water troughs were scrubbed on the same trip.

The feeders and waterers were mounted on skids with hooks at each end so that several feeders and a waterer could be fastened together quickly with chains and moved tandem to their new location. Pull-apart hose connections joined the waterers to the main supply line and the main supply line to the water tank. There was system in every move.

Fortunately for the turkey industry, there are a good many Mr. Wisemans in real life today. They are the ones who appreciate it is not just what you **know**, but what you **do** that counts.

Their plans include alternatives in case of mishaps. If their Ladino or alfalfa pastures fail, they are ready to jump in and seed rape or Sudan grass. Sudan, by the way, makes excellent pasture if it is seeded very heavy (80 pounds per acre). When it has been pastured over once, it will recover and be good for a second pasturing about six weeks later.

The real-life Mr. Wisemans are alert to changes. They study about the new drugs but they practice the tried and true principles of disease prevention, such as absolute isolation from chickens or other fowl. They consider the possibility of pole houses and confinement rearing, and balance the advantages and disadvantages against those of range methods under their conditions.

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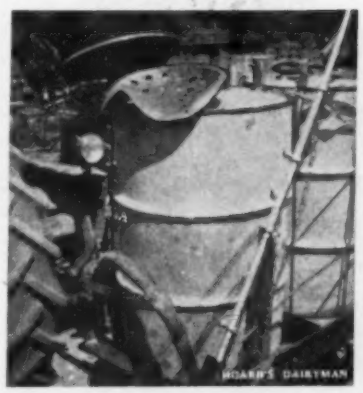
HANDY HINTS

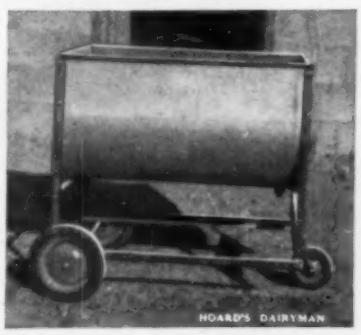
SEAT FOR HELPER



I welded an old implement seat onto my sprayer barrel to accommodate an extra helper to run the hand gun when spraying fence rows or patches of weeds.

Kansas LLOYD E. GERSTNER

FEED CART



This feed cart was made from an old milk can washing vat. We took the legs off the double vat and put them on one vat. Then we bolted 1¼-inch channel iron to bottom of legs to form a solid frame. A ½-inch axle was welded to frame for two coaster wagon wheels. A coaster wheel was put on the front, also. This cart will hold 150 pounds of feed.

WALTER A. DENSLINGER
Pennsylvania

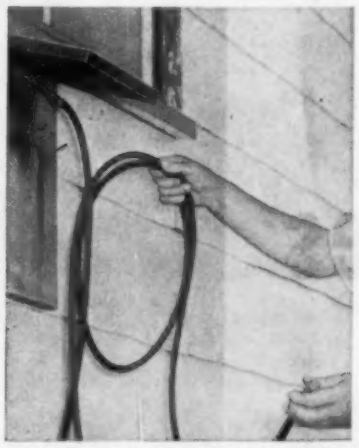
STEEL TOOL BOX

Practically any old steel box will make you an extra tool box. Instead of using hinges, use a screen door spring as a lid retainer. Spring is fastened at opposite ends in the bottom of the box, and the center of the spring to the center of the lid. Wooden lids will work well for boxes with no lids of their own. This box is the steel casing from an old car radio.

Illinois C. F. MARLEY

KEEP TIRES UP

No chasing around for the air hose to pump up tires here. The air compressor is just inside the building. A hole was drilled through



the wall for the air hose, and coiled up under the cover, it is protected from the sun and rain.

CHARLES L. STRATTON
New Hampshire

USES SMALL WINCH

One-man farm operator, Floyd Lampkin, Maryland, uses this small winch to hitch up his forage wagon to the field chopper. The winch, bolted to tongue, is of the type used to load small boats onto auto trailers. Tongue is guided by left hand.

Virginia WILBERT SCHAAL

NON-TIPPING HOG TROUGH

Walter Neisler, Irving, Illinois, made several hog troughs like the one shown here, using the gas tanks from old wrecked autos. He cut the tanks in halves with a welding torch, using each section for a trough. Then he outlined the same with heavy 2x6 wood.

On one end of the trough, Neisler allowed the end-board to protrude a foot further on each side, to make the trough non-tipping.

Illinois GROVER BRINKMAN

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YOUNG DAIRYMEN — *Careers in agriculture* — No. 33

"I keep vegetables rolling"

Providing a steady flow of peas, green beans, lima beans, carrots, beets, spinach, and sweet corn into a canning factory is my job.

by James R. Beam

THE AUTHOR talking to plant foreman through a two-way radio. From the field, he can relay information on the amount, type, quality, and the time vegetables will reach the plant.

MY JOB as chief fieldman for a food processing plant is to provide a steady flow of good-quality raw produce into the plant so as to assure a profitable production of high-quality canned merchandise. This consists of operations from planting through harvesting and delivery to the plant.

The field department must make a sales forecast of canned merchandise needed for the coming year, convert this into tons of raw produce necessary, and then to acres of vegetables needed to supply that amount of raw produce. For this, you need all the crystal balls you can get your hands on. Yields are largely determined by the weather, particularly the amount of rainfall.

In smaller plants the chief fieldman might have to handle all the operation himself. In larger plants he may have from two to five fieldmen to assist in carrying out his duties.

During the winter months the fieldman must spend a large share of his time in planning the next year's operation, visiting farmers and lining up the necessary acreage, assist in the maintenance of harvesting equipment, and make up and study harvesting cost reports. During the spring there is the job of taking soil samples and making fertilizer recommendations to the growers, and supervising the planting and growing of the crop.

Weed control is of particular importance in growing most vegetable crops, and the fieldman must be thoroughly familiar with all the herbicide chemicals and their uses. The same is true of disease and insect control. The fieldman must always be alert and make sure treatment is done promptly or the crop may be lost.

Then, of course, one job of vital importance is to see that the crop is harvested at the proper time. One day's delay may mean the loss of many valuable acres of raw produce. Daily visits to the fields are necessary as they near the harvest stage, and samples are taken for quality determination.

The author is chief fieldman for one of the Larsen Company plants in Wisconsin.

Need farm experience . . .

A background of farm experience is very helpful in a job of this nature. Of great value is a high school and college education, although there are many successful fieldmen who do not have the advantage of higher education. A college education in agriculture with particular emphasis on agronomy and horticulture, and possibly some course in food technology, should very nicely prepare the young man for this type of work.

I majored in ag education and taught vocational ag for five years before getting into the canning business. I feel this experience of working with farmers gave me a well-rounded background, and has helped me tremendously in my job.

To be a good fieldman, you must, first of all, have good common sense and like to work with people, particularly farmers. During the harvest operation, the fieldman sometimes is directing the work of from 20 to 30 men. He may be dealing directly with 50 or more different farmers.

During harvest a fieldman may be required to spend from 70 to 80 hours per week in carrying out his duties. However, during the winter months he generally is limited to 40 hours per week. Most fieldmen average about $4,000 to $5,000 per year, and the salary of the chief fieldman may range from $6,000 to $8,000 per year.

This job requires considerable traveling, particularly during the summer months. A fieldman might average between 20,000 and 30,000 miles per year, and sometimes covers a radius of about 40 miles from the plant.

The average canning plant might handle from 2,000 to 4,000 acres of vegetable crops each year. Some of the larger plants might process as high as 6,000 acres. Most of these crops are valued at $150 to $200 per acre so the economic effect on the community, particularly the farmer, is very great.

The canning and freezing industry is expanding tremendously and there is a very great opportunity for young men who have the necessary background and training. One thing about the food processing business is: Whether in times of prosperity or times of depression, people have to eat, and the demand for vegetables remains quite stable.

Anyone interested in this type of work may contact his own State Canners Association or the National Canners Association. The food processing industry offers a wonderful opportunity for high school and college boys to obtain summer employment where they might gain good, practical experience and be in a position to step into a good job when they are out of school. This practical experience is very important as it gives the individual a knowledge of what jobs might be available in the canning industry, and an "idea" of whether he would or would not like that type of work.

Many college graduates have only a vague understanding of what is expected of them in the food processing business. For example: One student I interviewed felt, because he knew how to test soil, he should be hired for that job. He was surprised when I informed him we could teach a high school student, in a few hours, how to do that job; that what we wanted was someone who could interpret the results of the soil in terms of a specific fertilizer recommendation. **THE END**

THE AUTHOR holding a registered Guernsey from the Ohio State University herd. Her judging coach, Harold Kaeser, is at the left.

"I'm going back to the farm"

by Lois C. Garbig

GET a job in the city after graduation from college this spring? Not me! I'm going home to the farm. After four years of being a city dweller, I'm more certain than ever that the farm is the place for this child of the R.F.D.

I like the personal "freedoms" of farm life. I want to sing when I feel like singing, shout when I feel like shouting, and be able to step out my back door without stumbling over my neighbor in the same act.

In a more realistic vein, before reaching this decision, there were certain questions to be answered to my own satisfaction.

What is there on the farm that is worth going back to?

To me farming is a way of life. There's something about the very atmosphere that brings a sense of nearness, even partnership with the Almighty. What nobler purpose can there be than that of carefully tending and maintaining the good earth and watching things spring up and grow.

I want my children to have the same opportunities which instilled in me the ideals I value so highly — those of the simple rural church, 4-H club, and kindly country folk.

What about the material side of the question?

Do I have an ideal setup waiting for me? No, far from it. There is a nucleus of registered dairy cattle which I hope to build into a fine and profitable herd. Landwise, the acreage will have to be doubled. My father is willing to lend his line of machinery into a partnership-type operation.

Can I make a decent living from farming?

I think so. My college education has shown me that efficiency is the keynote to success in most any business. Dairying, my chosen specialty, certainly offers a fertile field in which to practice this theory. Careful planning, study of market trends, employment of recognized good farming practices, and keeping of complete records will be a part of the operation.

What good is an expensive college education to a farmer?

My college studies have given me a new understanding of the land, livestock, and, yes, people. Understanding the "why" of things, I will be better able to know "how" to most profitably use the resources at my disposal. In this day and age what businessman would consider hiring a young executive who does not have a college education? Why should such education be less valuable to a self-employed farmer?

What will I, after being the "activity kid" all through college, find to do in the way of service and recreation?

There are many things. First, and foremost, of course, is the church and its activities. Next, I have my eye on a 4-H club which could use an extra leader to take some of the responsibility from the busy shoulders of its present chief. I intend to participate actively in the county and state Guernsey Breeders' Association. When these things don't fill up my time, I can always go fishing or take a walk through the meadow.

Live and work in the city?

No, indeed! I can hardly wait to get back to the farm.

As the temperature goes from 70 to 90 degrees the amount of water needed per cow doubles.

BARNEY FARMLAN

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MYERS MIGHTY-MITE KIT—6 GPM Du-All Pump, 30-300 pounds pressure. Complete with all-brass nozzle head, a pressure gauge, pressure regulating relief valve and mounting bracket.

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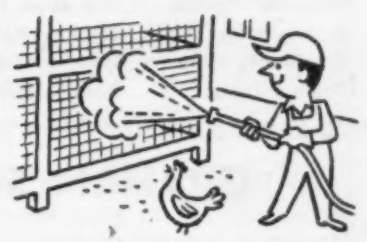

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ARTIFICIAL BREEDING

What conception rate means

Not all cows that conceive carry full term. Here is what "60-90-day non-return" rate means to you.

by H. A. Herman

A COW in calf on time is what dairy farmers want first from artificial breeding.

It is common practice, and the recognized reporting plan for members of The National Association of Artificial Breeders to quote preliminary breeding records on a 60-90-day non-return basis. This scheme also is used throughout Europe and many other parts of the world.

A 60-90-day non-return does not guarantee the cow in calf for full term. The great majority are in calf, however, and deliver calves as expected.

The term "60-90-day non-return" means that the cow has not been reported to the breeding association between 60 and 90 days after the first service, for a "repeat breeding." In fact, the usual term of "60-90-day first service non-returns" is preferable and more accurate.

This method of reporting breeding results has many advantages:

1. It enables the bull stud to evaluate early the settling rates on the sires in use. Bulls vary in non-return rate. Usually a sire is discarded when he shows consistent non-return rates below 50 per cent.
2. Technician has an early indication of his success in the field.
3. It gives a preliminary picture of the handling of semen in the field. Where technicians get highly variable results with semen from the same sire, the cause can be checked before too much time is lost. Variable results are not necessarily the fault of the technician. In some cases he is working in several herds that have a disease problem. In other cases, the cows may not be reported to him at the proper time for insemination. These factors always affect non-return rates.
4. Very important, it serves to give an early report on the patron's herd. A high percentage of cows returning after the first service means cows are not in calf on schedule. Herd conditions and the entire service program can be checked, the cause of failure determined and corrected, and valuable time saved.

How accurate?

The crucial test of any guide in evaluating conception is the number of cows that actually calve. Studies show if non-returns are accurately reported, the figures in terms of actual calves born are closely correlated.

Various studies show that some 5 to 8 per cent of the cows that are considered in calf on 60-90-day non-returns are not pregnant at a six months examination. In some cases the fertilized egg perishes and is resorbed. There are numerous factors such as disease, poor nutrition, injuries, severe sicknesses, and so forth, that contribute to cows not continuing pregnancy. In most cases these faults are not due to the artificial service. The fact is we are getting from 85 to 95 calves born, and the ratio agrees well with accurate non-return data.

Figures from Denmark, New Zealand, and other countries where non-return rates are used (but basing their final measures on pregnancies) indicate about 80 to 90 per cent of the cows in calf after a seven-week non-return period.

To insure low non-returns . . .

Any herd owner can greatly assist his technician in getting a good settling rate in his herd by observing three items:

1. Keep the herd healthy, and test regularly for disease.
2. Practice good feeding and management.
3. Cooperate with the technician by getting calls for service in on time; don't report heat dates inaccurately; and don't use natural service part time and expect artificial service to settle all the problem breeding cows.

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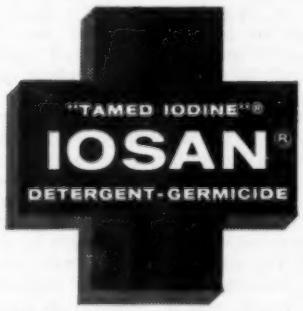

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HOARD'S DAIRYMAN
Fort Atkinson, Wis.

SWINE

by F. J. Giesler

Get yourself a ringside seat

Participating in or attending swine shows is time well spent. Much can be learned and it's helpful to talk to other breeders.

THE season is fast approaching when county, district, state, and national shows will be in full swing. There also will be many state and national breed type conferences scheduled by the various breed organizations.

Youngsters and seasoned veterans alike will be competing for ribbons, cash, and other awards. Some will go home happy and some won't, but all will be richer in knowledge gained from their experience in the show ring.

Not all folks are in full agreement as to the value of showing livestock. Some openly criticize all livestock shows. Maybe this is a good time to give some thought to the merit of the show ring.

You, as a swine producer, should be interested in the show ring, as it is a way to improve the quality of your hogs. In years gone by, this was about the only procedure that purebred breeders used to select their replacement stock.

Today, the breeder has additional tools such as swine evaluation stations and a certification program to aid him in the selection of his breeding stock. The commercial hog producer will gain by using this technique because whatever helps the purebred breeder will also help him.

Swine type has changed . . .

Swine type has changed from one extreme to another. In some instances, the show ring evaluation was wrong. However, changing emphasis from the production of lard-type hogs to production of meatier hogs surely was in the right direction.

The pendulum swung much too far in the direction of a slowly-maturing, inefficient hog and had to be adjusted to the production of a hog more on the basis of meatiness, efficiency in feed use, and gainability.

Competition is incentive . . .

Let's not forget that competition is a powerful tool. It makes us want to reach those goals first. We strive to continuously improve, and it makes us try to have better livestock than our neighbor. Look into the field of atomic energy. What fury the first sputnik caused in this country! Now we're in the race, too. We want this kind of spirit to exist in livestock production, also.

Competition among swine breeders in the show ring has been largely responsible for the development and maintenance of the breeds. Breeders have selected distinct characteristics that make it easy to recognize each breed, such as the Berkshire, Duroc, and Hampshire.

Because purebred breeders have maintained these characteristics in their breeds, the commercial hog producer can take advantage of hybrid vigor through a system of crossbreeding.

Your presence at swine shows creates an incentive for those breeders who go to the trouble of exhibiting their hogs. The competition which you see at swine events encourages the breeder to obtain the best boars and sows which he can afford and mate them to produce outstanding individuals. Competition in the show ring has stimulated the use of improved feeding and management practices by the producer.

Has educational value . . .

For several years, the National Barrow Show at Austin, Minnesota, has had a display of boars from certified litters representing the various breeds. This exhibit has shown that there is now available additional information that can be used in the selection of breeding stock.

Results from judging contests have shown that persons with some training consistently can make close estimates on such things as back-fat thickness and length of body of the live animal. As we learn of the effect of these two characteristics on such things as carcass grade and their relation to rate of gain and litter size, we will begin to evaluate more accurately the merit of live animals with more consistency.

To be sure, actual measurements are better than eye estimates, but a live animal is difficult to measure with a tape or a rule. Furthermore, actual measurements require a great deal of manpower, particularly if large numbers of animals are involved. Today, we can get measurements of the carcass on litter mates of breeding animals. This means we need to sacrifice one or more animals in the litter, and some breeders are not in full agreement with this practice.

Every swine producer needs to use all of the information available to guide him in his selection of breeding stock. The show ring can be used as one of these tools.

Frequent attendance at shows will help you train your eyes for quick evaluation of the groups of hogs in the ring. You can select individuals that will meet standards of quality as we evaluate individuals today. Then by comparing records of the individuals you have selected for breeding stock, you will be in a position to evaluate in a short period of time a larger number of animals. Supplemental records will help you to further evaluate their desirable characteristics.

Spending a few days of your time in a ringside seat or participating in the show itself will help guarantee a continued interest in swine improvement and a greater insurance that the hog business will be built on a more solid foundation.

Farm Shop
by Leo Roethe

Early fitting and grooming paves the way to big winners

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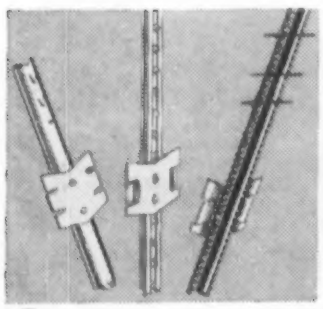

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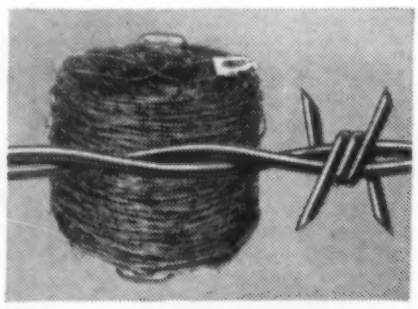

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Be on the lookout for WITCHWEED

This parasitic weed lives off the roots of corn, sorghum, and Sudan grass. It is under quarantine in North and South Carolina.

by W. G. Westmoreland

FLOWERING PLANT with bright green stems, narrow leaves, and red flowers is easily recognized.

WITCHWEED has recently been discovered in the United States. It is presently known on 1,646 farms in 11 southeastern North Carolina counties and 6 adjoining northeastern counties in South Carolina.

This weed is an annual plant which is parasitic on the roots of many cultivated grass host plants such as corn, sorghum, and Sudan grass, as well as a number of grassy weeds like crab grass, goosegrass, Johnson grass, and others. Reproduction is by tiny, almost-microscopic seed. Its spread is believed to be common through movement of infested soil, crops, crop packaging, and machinery. Wind and water seem to move infested soil easily.

What it does . . .

The danger in witchweed lies in its insidious means of attack and growth, and the resulting losses. The roots of host plants produce a chemical which stimulates the nearby witchweed seed to germinate. To survive, the seedling must immediately attach itself to the host root, by a swollen, bell-shaped structure.

After it attaches itself to the host root, the seedling grows as a white, fleshy underground stem for several days. It appears to stimulate host root growth about its own rudimentary roots. During this time it depends completely upon the host for nutrition and water.

In about three to five weeks some of the growing witchweed stems emerge in the sunlight and turn green. Within a few days after emergence, the plant (still greatly dependent upon the host plant) begins to produce flowers which will begin to release mature seed about 25 to 30 days later.

Soil infestation begins slowly with seed coming from one or several plants. Each mature plant can produce up to one-half million seed. If parasite growth goes unchecked, and a suitable host is present, literally billions of seed will be made and dropped to the soil to attack the roots of any susceptible host.

At first only a few crop plants are parasitized and fail to produce but soon, as more seed are made, many host plants fail to mature. Eventually large spots in the field fail to produce.

Where corn is planted in severely-infested soil it seldom gets over waist high and it produces practically nothing. Only a few witchweed plants will be seen above ground since a severe root infestation quickly kills the host plant and the parasites die, too.

How to handle . . .

Present knowledge indicates cleanliness and sanitation to hold the most promise for control and eventual eradication of witchweed. Continuous weeding to prevent seed production and selective cropping to cause seed germination appears to be the best means of control.

A host plant, as a "catch crop," may be planted to obtain maximum germination of seed and a control program used to kill every witchweed plant before it produces seed. The witchweed plant is readily killed in the seedling stage with 2,4-D. Where nearby crops are susceptible to 2,4-D, DNBP can be used. Cultivation and hand hoeing should be used where chemicals may be hazardous.

Certain plants grown as "trap crops" cause witchweed seed to germinate but will not serve as a host to which witchweed might attach itself. The use of cowpeas, soybeans, peanuts, or crotolaria as trap crops will cause many seeds to germinate and die. These crops allow no witchweed seed to be produced.

Grassy weeds growing in either catch crops or trap crops can serve as hosts for witchweed.

Some characteristics of the plant itself indicate the possibility of limitations on its spread and adaptation. Witchweed seems to prefer deep sands or loamy sands which are well drained, although it will grow on other soils.

Soil temperatures appear to be critical since seed germination is poor at 70 degrees. Good seed germination and plant growth occur at soil temperatures of 85 degrees, or somewhat higher. If witchweed is to attain maximum growth and reach maturity, it seems that good growth conditions must be maintained for at least 80 days.

What is being done?

A thorough research program is underway to increase our understanding of the plant and to find better and more effective methods of control. A federal quarantine, by the U. S. Department of Agriculture Plant Pest Control Division, is in effect to control the movement out of the infested area of all plant and crop material, as well as all machinery and farm packaging material. It is believed that the team of research workers, extension people, and quarantine personnel will do much to help contain the problem and return the infested area to full production.

The author is an extension agronomy specialist in weeds at North Carolina State College.

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The rate for advertising in this department is 30 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX #, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 8 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us four weeks ahead of date of issue. NEW ADVERTISERS MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

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FLORIDA FARMING is pleasant and profitable. Desirable properties available. TOM McDONALD, Box 4133, Ft. Lauderdale, Fla. 7-spi

CENTRAL TENNESSEE high phosphate bluegrass dairy and general purpose farms. Moderate winters. $125 to $200 per acre. BILLINGTON & COMPANY, Franklin, Tenn. 11-*

OUTSTANDING DAIRY FARM, over 300 acres, wonderful buildings — dairy herd — and complete farm machinery, just outside City limits, must be seen to appreciate value. Poor health reason for selling. JOHN LUNENSCHLOSS, Richland Center, Wisconsin. 11-2

MINNESOTA DAIRY FARM. Probably the largest and best equipped Grade A farm in Northern Minnesota. Income over $28,000 last year. Handles 60 cows and 50 head young stock. 180 acres all crop land except 8 acres heavy pine. 2 tile silos, 2 barn cleaners, 2 houses. Total 14 larger buildings, 8 of them with rock wool insulation and electric ventilation. Pastures irrigated 18 inch well. All buildings in very fine state of repair, most of them less than 10 years old. This is a hundred thousand dollar property. $25,000 down and $3500 a year for 10 years and its yours. Beautiful location, 500 feet to a large lake, on trunk highway, half mile to town. Am 74 years old and getting very tired. OWNER, J. H. BENDER, Nevis, Minnesota.

GRADE A DAIRY Ranch. 160 acres irrigated farm land. New modern home, tenant house. Surge milking parlor. New loafing shed. Ranch will carry 100 head of cattle and raise feed. Excellent terms. SCHMITT & MUFFLEY, Brokers, Gooding, Idaho, John Edinborough, Salesman.

CENTRAL WISCONSIN DAIRY Farms — 120 acre farm, machinery, cattle and crops, lovely modern home, large barn, machine shed, cement silo — all for only $25,000 — excellent terms. Many other farms, write for free list. VERN STEVENS, Route 3, Marshfield, Wisconsin, Phone Spencer 2236, Representing Arthur L. Boock Agency. 11-2

1400 ACRES with all personal including 300 head Holsteins and 30 brood sows to farrow, all machinery and crops. Four houses, one exceptional; dairy barn and 8-cow milking parlor and bulk tank; feeder barn; hog barn. 550 tillable, rest in pasture and timber. 5 springs, small lake. Buildings excellent. Some of best soil in Wisconsin on farm.* 150 acres of level land and good buildings for $25,000 with $5000 down. Grade A barn and milk house, good buildings, modern house. Land slight sand content, good producer. Creek thru corner.* 283 acre feeder and hog farm. Level land, little sand in it in part of farm. Good producer. 2 houses, one large and gracious. 20 miles to Madison. $69,000, with terms.* 300 acre most most outstanding dairy, feeder and hog farm in Southern Wisconsin. 210 acres nearly level black Carrington Silt Loam, balance rolling clay loam soil, with some timber. Outstanding dairy barn. 76 stanchions with milk pipeline to bulk cooler; 4 silos; 10,000 bushel corn crib and granary; feeder barn, hog barn. 3 modern houses, one very fine. 19 miles to Madison. $96,000, $30,000 down. Sell off the big house for $25,000 if desire, making it cheap farm. * Many other farms, send for list. Member NAREB 18 years, member National Association Farm Brokers. HYNE REALTY, Evansville, Wisconsin. Phone 12W.

FARMS FOR SALE

MODERN FARM HOMES. Beautiful Wisconsin lake and dairying region. Convenient Twin Cities. $75 per acre and up. BAKER LAND & TITLE COMPANY, Land Specialists since 1874, St. Croix Falls, Wisconsin.

BIG STROUT CATALOG! Mailed free! Farms, homes, businesses, coast-to-coast, 34 states, around 3000 bargains. World's largest: 58 years' service. STROUT REALTY, 7-TF S. Dearborn, Chicago 3, Illinois. 11-3

FLORIDA — Dairy farm, established market, modern home, barn, 110 acres pasture, 80 acres crop land, silos. Requires $50,000 down. C. C. WATKINS, Realtor, Box 6278, Orlando, Florida.

GEORGIA DAIRIES, Southwest section near Albany, Georgia. 1,000 acre farm with milk contract, 75 cows, all new pipeline system for $63,500. 550 acres in rich farming community, milking 40 cows, could handle more. Other dairies available — large or small. What are your needs? 27 years of professional farm management experience available. OPEKASIT, 113 Gillespie, Albany, Georgia. 11-2

RENTERS! $8,000 down buys this beautiful 120 acre farm with cattle, machinery and feed. Home has hot and cold water, bath, oil furnace, large barn, new silo, machine shed, other buildings, sells grade A milk. 34 head Holstein cattle (will feed more cattle). 3 tractors, combine, chopper, 1½ ton truck and lots of other machinery. Total price less than $300 per acre. Over 60 other farms to choose from, write for free list. FLOYD JOHNSON REALTY, Marshfield, Wisconsin, Route 2, telephone Lindsey 1304.

FARMS WANTED

WANTED LARGE DAIRY FARMS—middle Atlantic coast states—must be completely stocked and equipped—high prices paid—one price for stock-equipment-farm, bought on percentage of income only—or lease-purchase agreements—short 10 years mortgages—paid cash monthly—Box 131 Bethlehem, Connecticut.

HELP WANTED

AM LOOKING FOR a young single or married man with superior ambition and ability to continue development of Purebred Holsteins on small acreage Northern Illinois farm, presently Grade B. R. SMITH, Durand, Ill. 10-2

OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-spi

WANTED—Experienced, reliable working farm manager, with own help, 30 milking herd. Position open July 1. Ashland County, Wisconsin. Apartment and utilities. State experience and references. MAX RADLOFF JR., High Bridge, Wisconsin. 11-2

WANTED, HOUSEKEEPER Companion 30-40, Protestant, German or Scandinavian, non-smoker. Prefer small neat woman that likes country life. Man alone on small dairy farm. Good opportunity for widow with 1 or 2 children. Permanent for the one that qualifies, write full particulars. Photo and references exchanged. JOHN SCHNEIDER, Route 2, BOX 197, Scotia, New York.

WANTED: Supervisors for DHIA and Official Testing in Florida. Only well-qualified men with excellent recommendations need apply. EXTENSION DAIRYMAN, University of Florida, Gainesville.

MARRIED MAN to work with registered Holsteins for farmer breeder. Modern house. Top wages for reliable man. BOX 89, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 11-2

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SALES TRAINEE — Young man, single, veteran, to sell Kendall Milk Filters to retailers. Extensive travel and relocation necessary. Salary, expenses and car furnished. Previous dairy experience desired. Write SALES MANAGER, Kendall Mills, Walpole, Massachusetts.

POSITIONS WANTED

FARM MANAGER, Herdsman, 28, veteran, family. College degrees. Prefer New England. Available September 1st. BOX 81, care Hoard's Dairyman, Fort Atkinson, Wis. 10-2

EXPERIENCED FARM MANAGER, healthy, reliable, efficient, desires same position on large dairy farm. Lifelong experience in dairy, livestock and crops. College degrees. Available July 1. Prefer East or South. BOX 27, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 3-spi

EXPERIENCED, BONDED relief herdsmen and assistants. Dairy herds managed for indefinite periods in the event of illness, accident or vacations. Also 26 weeks free accident/sickness service. Write THE RELIEF MILKING SERVICE OF AMERICA, 3110 Marvin, Toledo 6, Ohio. Allstates Emergency Milking phone GReenwood 9-6226. 9-*

WORKING FARM MANAGER or Herdsman. Experienced, sober, references. Box 87, care Hoard's Dairyman Fort Atkinson, Wisconsin.

EXPERIENCED, COLLEGE-TRAINED dairy farm manager available for large operation. BOX 88, care Hoard's Dairyman, Fort Atkinson Wisconsin.

EXPERIENCED DAIRY Farm Manager, all phases, 12 years present position, desires position with good purebred herd. Box 85, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

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GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

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BORDER COLLIE PUPS. From good heeling stock. GLEN MORRIS, Rural Route 4, Oconomowoc, Wisconsin.

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FOR SALE, top quality Wisconsin feeder pigs, 8-10 weeks old. All farmer raised around here, no runts. All veterinary inspected. Get your pigs from a licensed dealer and get toppers. CLARENCE ACKER, Middleton, Wisconsin. Phone Terrace 6-3451. 1-*

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RAISE ANGORA, New Zealand Rabbits on $500 month plan. Plenty markets. Free details. WHITE'S RABBITRY, Delaware, Ohio. 10-*

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ROCKS, HAMPSHIRES, Leghorns, Austra-whites $6.99, Pullets $16.99, heavies $6.49, table use $5.99, fryers $2.99, surplus $1.49. BUSH HATCHERY, Clinton, Missouri. 10-*

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LEARN professional cake decorating. Details free. DECO-SECRETS, Venice 34, Calif. 14-*

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YES, IT'S TRUE, 8 giant 4 x 6 prints with exclusive "Perfectone" quality only 35c, 12 exposures — 50c with this ad. For perfect prints and service, mail your next roll of film to PERFECT FILM SERVICE, Box 688, Dept. HD68, La Crosse, Wisconsin.

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WANT LOAD Guernsey, Holstein or Jersey heifers. 600 to 1000 pounds, C.V. and with good production background. Registration not essential. BRETAGNE FARM, Americus, Georgia.

WANTED, 25 well bred grade Holstein heifers to calve in October and November. BOX 112, Black Diamond, Alberta, Canada. 11-2

DAIRY CATTLE

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Dairymen—buying on order will save you time and money. Call or write Fort Atkinson, Wisconsin. Telephone JOrdan 3-5905. 18-*

ATTENTION DAIRYMEN. Attend Wisconsin's largest dairy auction every Wednesday afternoon. From 300 to 500 head Wisconsin dairy cattle to choose from. CENTRAL WISCONSIN LIVESTOCK AUCTION, Tomah, Wisconsin. For other information call or write Jerry Randall, Augusta, Wisconsin. 6-12

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BUY YOUR VACCINATED dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wisconsin. Phone 944-R. 5-17

For More Special Opportunities Turn to Next Page

Special Opportunities

FOR YOUR DAIRY CATTLE needs see LINK BROTHERS, INC., Minong, Wisconsin. We are one of Wisconsin's largest order buyers. Holstein and Guernsey heifers our specialty. Always a large number on hand. 9-*

WISCONSIN'S FINEST High production dairy cattle—cows and heifers—all ages. W. R. LEHMANN, Route 4, Watertown, Wisconsin; Hot Springs, Arkansas Branch: George Paul, Mountain Valley Route. 10-2

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From Wisconsin's Dairyland. Certified proof of breeding and production records. We will contract to rebuy these calves anytime from 4 months to 2 years of age at more than current price in your area.

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Your choice of the world's finest high-production herds right from the heart of America's Dairyland. The safest, surest way to increased milk checks! Certified proof of breeding. Production records. T. B. and Bangs tested. Fieldman service at your convenience, or selection to your specifications. Serving America's dairy farmers for over 60 years.

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Choice Dairy cows and heifers. Jerseys, Guernseys, Shorthorns, Holsteins. Fresh and coming fresh soon, all T.B , Bang's tested. Come and make your selection, or will fill your order, or help you buy.

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TO DATE — 84 TESTED DAMS

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REGISTERED AYRSHIRE BULLS

all ages out of record dams, imported breeding. Reasonable. Write:

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BROWN SWISS CATTLE

ALL-BREED FAT CHAMPION

Lee's Hill Keeper's Raven 171673

The Breed of Champions

SETS NEW BUTTERFAT RECORD FOR ALL BREEDS

Age	Times milked	Days	Milk (lbs.)	% Test	Butterfat (lbs.)
9-9	3	365	34,850.9	4.53	1,579.28

The new butterfat production champion over all breeds was bred, owned and tested by Lee's Hill Farm, New Vernon, New Jersey, owned by Mr. and Mrs. Warren Kinney.

Her new record was started on April 9, 1957, at the age of nine years and nine months; and in 365 days on three times a day milking, she produced a total of 34,850.9 pounds of milk, 4.53% test, 1579.28 pounds of butterfat. She completed her record on April 8, 1958.

During the 365 day lactation which establishes this new all time fat production record for all breeds and both fat and milk production for the Brown Swiss breed, the "Raven" cow averaged 95.4 pounds of milk per day with an average of 4.32 pounds of butterfat. Her high day in milk production was May 22, 1957, when she produced 121.5 pounds of milk. Her high month in production during the lactation was May 1957 when she produced 3516.5 pounds of milk, testing 4.47% test, or a total of 157.19 pounds of butterfat.

In analyzing the "Raven" cow's new national production record, it is interesting to note how she held up in her production through the year. The second high month of her 365 day lactation was the month of March 1958, in which she was milking in her 11th and 12th month since calving. On her last day of the 365 day lactation, she produced 90.5 pounds of milk.

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AYRSHIRE BULL CALVES—We still have a few extra good bull calves that will be old enough for Fall service. Write for pedigrees and prices. Get them young and save shipping costs.

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POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
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Gentle, efficient Guernseys hold the key to success in Modern dairying. Send for FREE information on how to start a Guernsey herd. Write today,

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FOR UNIFORMITY IN YOUR HERD. Select a good typy young bull sired by one of our fine quality sires—Sanfadair F. Predition or Sanfadair L. Princeton or Fairlawn K. Princeton. They will add quality to your herd and they are priced right. See them at the farm. Highway #96—between Stillwater and White Bear Lake, Minn.

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Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. **Waukesha County Guernsey Breeders' Asso., Waukesha, Wisconsin.**

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Offering select Guernsey bull calves up to serviceable age. **Sired:** by McDonald Farms Pre Melvin, an outstanding type and production Sire. **Dams:** are daughters of the great proved high production Sire, Flying Horse Masters Royal, large, typy, good uddered cows with records up to over 10,000 lbs. milk, 550 fat as 2-yr.-olds, 305—2x milking. **Heifer calves for club work for Sale,** the blue ribbon kind. **The Right kind at the Right price.** Write or come to **GRANDVU FARMS, Wrightstown, Wisconsin.**

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By proven bulls and out of high producing cow families. Priced reasonable.

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Born November 27, 1957

A RICHLY BRED HERD SIRE PROSPECT

Carnation Ideal Leo, pictured above, is a son of Frasea Ideal Pilot who is "Very Good" and a Gold Medal Proven sire. Pilot's entire list of classified daughters average 85 points. His daughters have especially good udders. His 21 daughters that have completed records to date average 15,438 lbs. of milk 577 lbs. of fat 3.74% on a 2x 305 day M.E. basis.

The dam of Carnation Ideal Leo is a "Very Good" daughter of Carnation Chieftain with 3x records up to 827 lbs. of fat and 2x record up to 732 lbs. She has a lifetime total, most all on 2x milking, of 121,660 lbs. of milk, 4,662 lbs. of fat. The next dam is a 1009 lb. daughter of the three-time All-American show bull Carnation Governor Imperial from a daughter of Governor of Carnation.

Here is a young bull with a deep, strong, constructive pedigree both typewise and production-wise.

Write for pedigree and price.

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Address: CARNATION MILK FARMS Dept. # 132 Carnation, Washington

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(Pictured as Senior Yearling)

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STOFFELL'S MILK FARM
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REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows.
Free fieldman services. Write-wire-phone for prices:
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Free Fieldman Service
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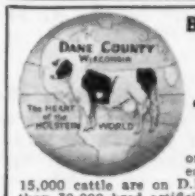

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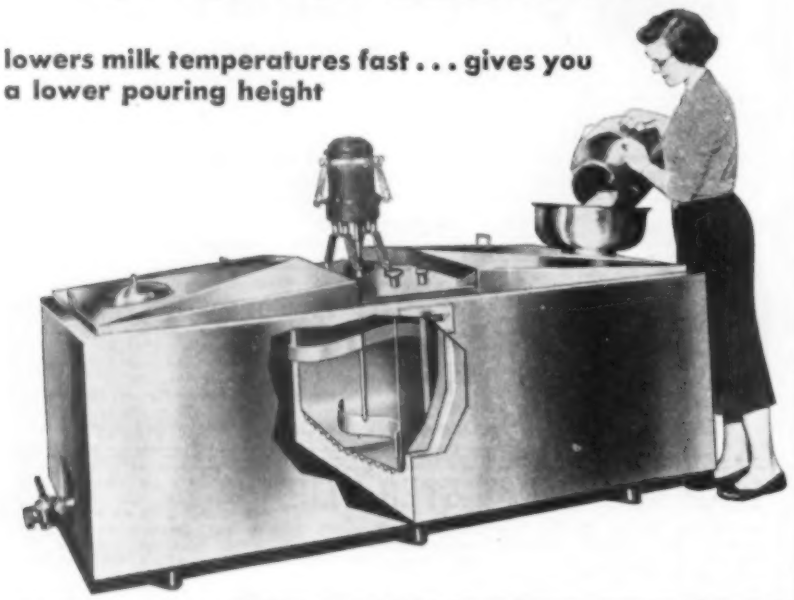
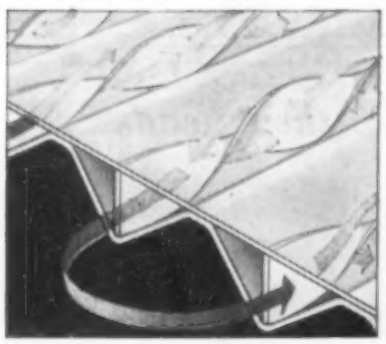
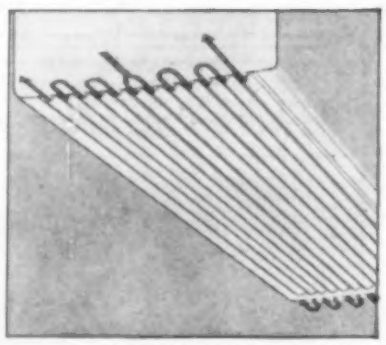




SPECIAL SPIRAL RIBBON FREON MIXERS in the serpentine evaporators spin and swirl the combination liquid/gas mixture. The freon does a complete job of heat transfer.



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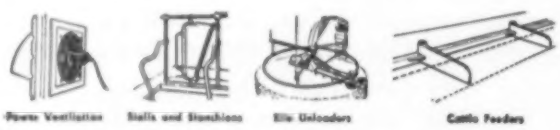

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Infections of the navel

There are many organisms capable of causing navel infections. Care and cleanliness at birth are still the best methods of control.

by E. A. Woelffer, D.V.M.

WHILE navel infections are not as common in calves as they are in foals or lambs, they occur frequently enough that they should not be overlooked. They occur mostly in large herds, particularly where abortions and other breeding diseases are present.

The germ most often responsible for navel ill in lambs is known as *Actinomyces necrophorus*. It also causes some infection in calves.

This is the same organism which causes foot rot in cattle and sheep. It also causes laryngitis in calves (diphtheria), and necrotic enteritis (bowel inflammation) in swine.

In large breeding herds the infection is sometimes extensive and the death rate quite high.

A variety of organisms, including mixed infections, are responsible for inflammation of the navel in colts and calves. Each of the organisms produces symptoms and changes peculiar to the infection.

Some of the more common organisms are of the streptococci variety. They frequently induce a mild inflammation of the joints, especially in older foals.

Another organism is *Viscosum equi*. It attacks the foal the first few hours after birth, or the animal is sick when born.

Usually when this organism is present, the kidney also is involved. Either an abscess forms or there is destruction of the kidney tissue.

Fever and weakness . . .

Symptoms often seen when the viscosum organism is present are sudden onset of fever and extreme weakness. Death often comes quickly. Usually the attack occurs within the first three days of life.

Streptococci infection has a much longer period of incubation. The disease commonly appears after the foal is 10 to 14 days of age, and those that do not die usually are sick for two or three weeks.

The first symptom to appear is swelling of one or more of the joints, particularly of the stifle or hock. This may be followed by weakness and loss of condition.

Frequent urination is a common symptom of all foals suffering from navel ill.

In colon infections, an acute septicemia (poisoning) usually develops. The joints are sometimes inflamed and swollen when this germ is present.

In calves, navel infection may occur separately, or in association with other infectious diseases such as scours. Navel infections in calves usually are localized. Abscess formation and general septicemia, however, are not uncommon.

Navel infection in lambs generally exists in two forms; an acute or rapidly-developing type (leading to death when the animal is about a week old), and a more slowly progressing (chronic) disease. The chronic form usually affects older lambs and is characterized by lameness, stiffness, and paralysis.

Control . . .

At large horse breeding establishments, the most effective control measures for navel ill and other diseases of newborn foals are the modern methods of examination and treatment of the mare and stallion previous to breeding.

Lower conception and diseased foals result when the uterus is infected. After the foal is born, systematic care is rigidly practiced.

For delivery, the mare is placed in a special foaling stall. Immediately after birth, the navel cord of the foal is thoroughly saturated with tincture of iodine or some other suitable disinfectant.

As soon as the fetal membranes come away, the hind parts and udder of the mare are washed with warm water. Then she is removed with the foal to another box stall.

The precautionary measures employed on successful horse breeding farms generally are not so thoroughly practiced where calves and lambs are raised. This does not mean that extra care is less important on cattle and sheep breeding farms.

Our goal should be that only animals with healthy reproductive tracts be mated. Newborn calves and lambs should be dropped in clean, well-bedded stalls. Dip the navel in tincture of iodine.

Bacterial count not reliable mastitis indicator

University of Wisconsin scientists last year made mastitis tests in 11 selected Wisconsin herds and also obtained total bacteria counts for these herds from municipal milk inspectors.

Some of the herds with high bacteria counts had fewer cows infected with mastitis than some herds with lower counts. But some herds where many cows were infected with mastitis were producing milk with a low bacteria count.

For instance, one herd had only 21 per cent of the quarters infected and its milk contained around 100,000 bacteria per milliliter. Another herd, with 57 per cent of the quarters infected, had a total bacteria count of less than 30,000 per milliliter.

Joseph Simon and Predrag Martinovitch, who conducted the tests in cooperation with Phillip Reese of the Madison Milk Producers Association, feel that usual procedures for determination of total bacterial counts of milk are not suitable for detection of herd mastitis problems. Such counts are influenced too much by poor cooling, careless milking, unsanitary equipment, and the like.

The researchers think that bacterial counts may indicate presence of mastitis caused by intestinal organisms. But they point out that mastitis caused by other types of organisms (streptococci and staphylococci) is the most important problem to dairymen.

Detection and elimination of this type of mastitis requires constant vigilance of each cow in the herd, with rapid isolation, testing, treatment of cows which appear to be infected, and elimination of cattle that fail to respond to treatment.

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

What does fever indicate?

What do we mean when we say an animal has a fever? Essentially it means that the temperature of the body is abnormally high. It is high because there is interference with the heat-regulating mechanism of the body. The degree of variation above the normal temperature range may be due to a number of factors. Usually a disease or infection is present.

In the absence of disease, high temperatures also result from confinement to hot quarters, or exposure to the direct rays of the sun. A female during heat often reveals an increase in temperature.

A chronic (slowly progressing) infection usually causes only a slight rise in temperature. A good example of such an infection is tuberculosis. In acute infections, such as mastitis or pneumonia, the temperature often goes up several degrees.

Certain changes or stress disturbances may occur as a result of fever. One of the more common is loss of water in the body tissues. In fact, severe drying up or dehydration in itself can produce a rise in body temperature.

In the process of losing water, minerals, particularly sodium chloride, are also lost. When the fever lasts for some time the body becomes depleted in the alkali reserve (acidosis) of the body. This condition often leads to what is known as acid intoxication.

Excessive water and mineral loss often causes muscular twitching and general depression. A chill is frequently an indication of fever. Swellings from infected or injured tissues or glands, as the udder, for example, may be associated with temperature rises.

High temperatures which persist sometimes bring on convulsions. These in turn lead to more heat production and higher fever.

Treatment of high fever usually consists in determining and treating the cause, and supplying the necessary fluids and mineral salts. The application of cold packs to the head or over-all soaking with water often provides additional treatment.

Body temperatures of humans and small animals, such as dogs, are lowered by cold water or alcohol sponge baths. Convulsions are controlled by sedation or anesthetic doses of barbituates. These usually are given intravenously. Life is in danger if the temperature of the animal rises 8 to 10 degrees above the normal.

When the body temperature is lower than normal, from exposure to cold, warmth instead of cold must be provided. Preferably, the animal should be placed in a box stall and covered with blankets so temperature will be raised slowly.

SYMPTOMS OF LEPTOSPIROSIS

Please send me information on leptospirosis in dairy cattle.

We milk from 18 to 20 Holsteins and in the last two months they have fallen off half in milk production, lost weight, and have been giving bad milk. Our veterinarian says it is not mastitis and he doesn't know what is wrong.

We lost three calves about 9 months old this fall and four about the same age in the spring. They had no fever, had regular bowel movements, and everything was all right until the last few hours when they had trouble breathing.

Elk City, Kansas R. V. H.

Some of the principal symptoms of leptospirosis in dairy cattle are loss of appetite, decrease in milk production, and a brief high temperature early in the onset of the disease. Since the organism usually localizes in the kidney, the urine often contains blood. Milk is slightly thickened and yellowish in color without indications of mastitis. Abortions may occur.

It is possible your herd is infected with leptospirosis. However, from your description of the milk and udders and the high death rate, it indicates there are other factors involved. A thorough examination should be made by your veterinarian.

If leptospirosis is suspected, permit your veterinarian to take 10 or 12 blood samples from some of the adults or milking cows and submit them to a laboratory for agglutination tests. If a number of them show high titres, it is very likely the infection is present in the herd.

TREATMENT FOR UDDER SORES, FOOT ROT

Some time ago in your veterinary column you advised using Cerbinol for udder sores. We had been having a lot of trouble with other preparations and then we tried Cerbinol, which cleared the sores after several treatments.

But as a follow-up after applying the Cerbinol, we used baking soda or boric acid powder to help absorb the moisture. Recovery was much faster.

We now have a foul foot problem. Do you have any suggestions for treatment?

Pipersville, Pa. D. G.

Thank you for telling us of your experience with Cerbinol and baking soda and boric acid powder as a follow-up treatment on udder sores.

Foot rot in cattle is often associated with mudholes, usually around the water tank and yards, that contain sharp stones or cinders which injure the soft tissue of the feet. If you can locate a predisposing cause, the condition can be corrected.

It also might be advisable to construct a shallow box, placed just inside the doorway of the barn so that the cows will walk through it when entering and leaving. The sides may be made of 2 x 4's placed on edge. Then fill the box with agricultural limestone. The treatment is more effective when 10 pounds of copper sulphate powder are mixed with 100 pounds of lime.

When a cow is lame it is always a good practice to pick up the foot. Make sure a nail or some other object isn't causing the trouble. The foot should be cleaned and trimmed, and a suitable antiseptic applied. When the condition is severe, it may be necessary to bandage. Usually systemic treatment is also required. If the joint is affected, it may be necessary to surgically remove the claw.

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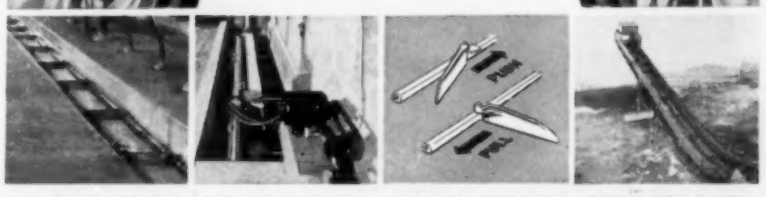

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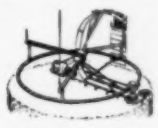

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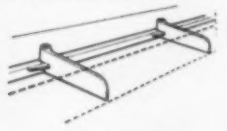

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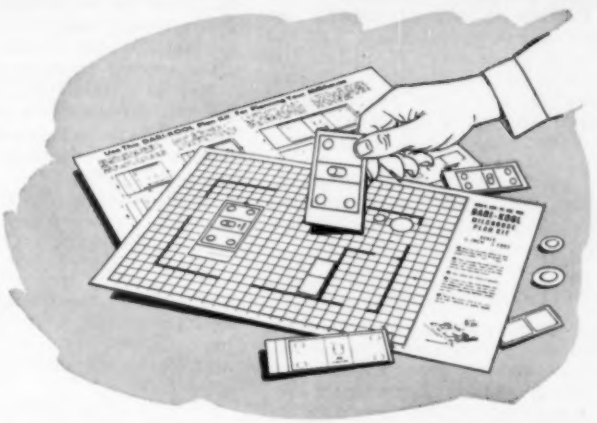
(signed) Mr. & Mrs. Elmer Haberman



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